

MARCH 13, 1961

PURCHASING

The Methods and News Magazine for Industrial Buyers




An Easy Way to Upgrade Buyers

p. 70



One-Man Purchasing Department

p. 83



Honor System for MRO Buying

p. 78



What Good Are Penalty Clauses?

p. 90

Announcing
CARMET®



Series Cutting Grades

to boost production—extend tool life up to 200%

If you're tooling-up for a really tough cut, try Carmet's new 700 Series Cutting Grades. Make one super-duty tool do the work of two or three—on any steelcutting job, including superalloys.

Carmet's 700 Series is a new, premium group of carbide grades just released after exhaustive field trials. Results were conclusive. These carbides stood up under the roughest interrupted cuts going. They gave longer tool life than competitive grades in the same application class. And, they produced exceptionally fine finish cuts, even in C-8 precision boring classifications.

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"Turning tapered, slotted, forged SAE 4140 valve plugs . . . formerly got 8 finished pieces per cutting edge. Now get up to 25 pieces with CA-720 on a tough, interrupted cut!"

"Turning OD of universal joint ears . . . now getting 177 pieces with CA-720 against 135 with former tool."

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CARMET 700 SERIES CATALOG SUPPLEMENT NOW AVAILABLE

There's a new Supplement to the Carmet Catalog C-16-B, listing tool and insert styles, and prices for the new 700 Series. Contact your local distributor, or write Carmet direct.

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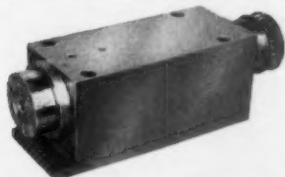
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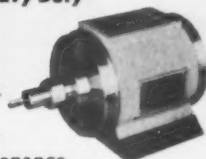


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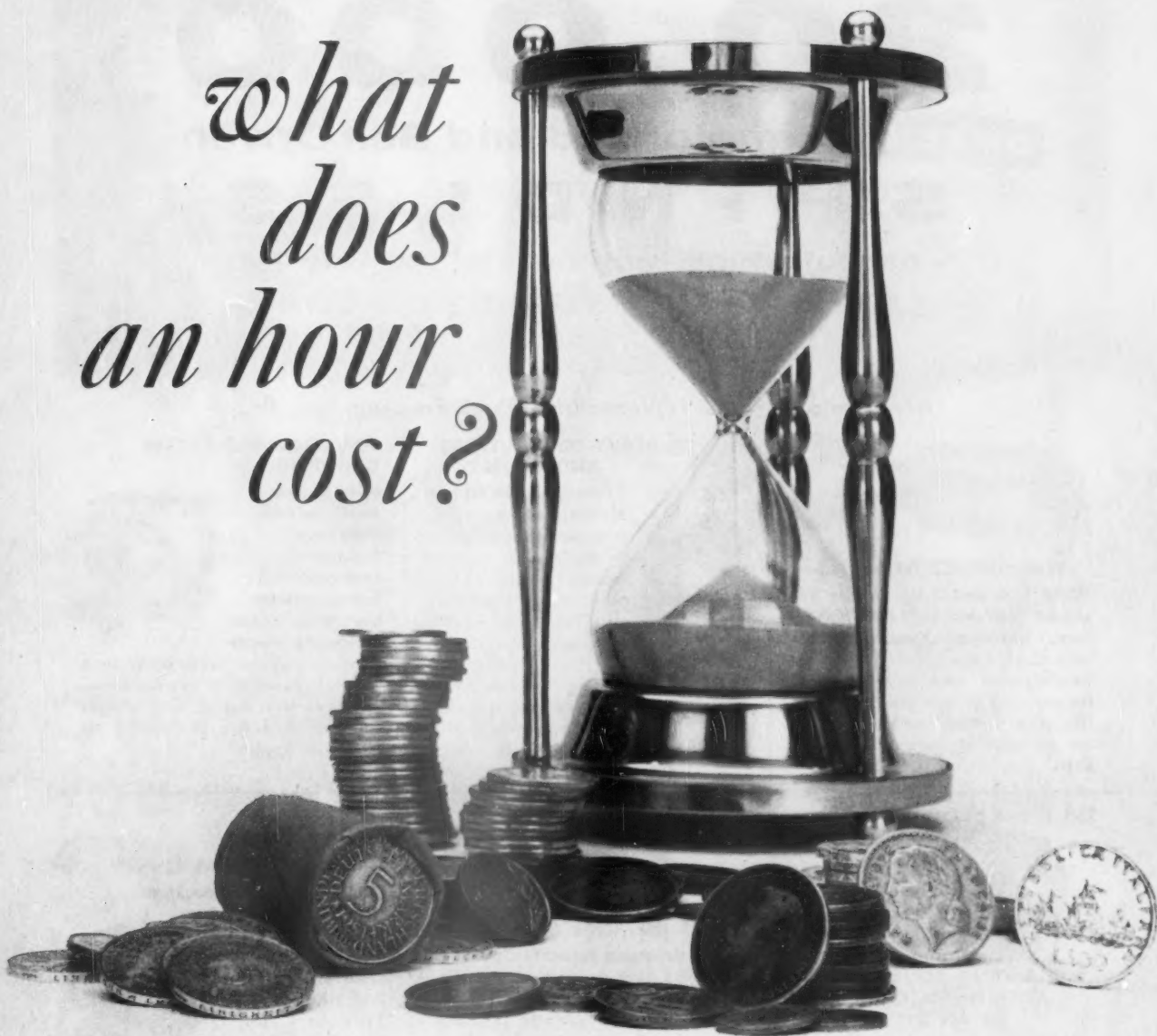
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An Easy Way to Upgrade Buyers 70

One method of improving purchasing efficiency: free buyers from routine details and make each of them a purchasing agent. This enlightened approach to the buying function is paying big dividends for Wyandotte Chemicals.

Cost Reduction Program Saves \$550,000 in Six Years 74

By putting cost reduction on an organized basis, Behr-Manning Co. has had outstanding success in reducing raw materials expenditures.

Lumber Buying Plan Saves \$25,000 76

You wouldn't think you could save much on purchases of crating lumber, but a Westinghouse plant, with a unique value analysis program, has made startling cost reductions.

Honor System for MRO Buying 78

Giving suppliers responsibility for your own stores inventories may sound strange—but it works.

Specials: Must They Be Expensive? 81

Many companies find that by purchasing "near-standard" fasteners, instead of specials, they can get what they need at much lower cost.

One-Man Purchasing Department Plans for Growth 83

A new P.A. in a new company faces special problems. Here's how one executive meets the challenge.

What's Up With Piggyback? 84

There have been many innovations in trailer-on-flat-car freight service that the cost-conscious P.A. should know about.

Management Backing Boosts Purchasing 86

How Gyrodyne Co.'s new purchasing department got off to a fast start with the help of management support; how it handles the tricky job of buying for government contract work.

Business News Analysis

Pulse of Business	7	Washington Report	23
Straws in the Trade Wind	13	International Report	27
The Trend of Prices	17	Purchasing Follow-Up	31

Regular Features

Information for Your Catalog Files ..	40	Forms Forum	88
Letters to the Editor	48	Legal Article: Penalty Clauses	90
Purchasing People	52	Products and Ideas	96
F.O.B.	58	Office Equipment and Supplies	136
Calendar of Coming Events	64	Association News	160
Purchasing Pointers	67	News	184
Editorial: What Kind of Purchasing Education?	69	Employment Service	214
		Index to Advertisers	216

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Ordinary hydraulic fluid made from mineral oil is ignited by open flame. Torch is 18 inches from nozzle orifice.



Shell Iruis 902 Hydraulic Fluid, in the same test, refused to be ignited by 3000-degree flame.

BULLETIN:

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1. Cools off systems. Because of its high rate of heat transfer and high

heat capacity, Iruis 902 can allow hydraulic systems to run cooler.

2. Resists thickening and thinning. The viscosity of Iruis 902 is tailored to protect pump parts during the entire working cycle—from cold start-up to hot, continuous operation.

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For complete details about changing over to Shell Iruis 902, contact your nearest Shell Industrial Products Rep-

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Pulse of Business

Some Signs Of a Pickup

Aid to Education Boosting Construction

WITH AN improvement in weather, several areas of industrial activity are waking up. Chief among them are building and construction, particularly in the non-residential field. It won't be long before residential building shows an improvement also.

Estimates of non-residential building indicate spending currently is at an annual rate of \$34 billion, following a dip in January. By mid-year, the figure is expected to rise to over \$36 billion. Public works and road building are benefiting from government expenditures. Some contraction in industrial construction is more than offset by gains in commercial, store and office buildings.

Federal aid to education, as outlined by President Kennedy, will give the construction trades another boost. His proposal to spend \$5.3 billion over the next five years contains the promise of more than \$2.5 billion to supplement current plans for construction of college academic facilities (such as classrooms, laboratories, and libraries,) and residential housing for students and faculty.

Meanwhile, the steel industry appears to be gaining some momentum, although at a slow pace. The current operating rate is over 54% of capacity for the first time in many months.

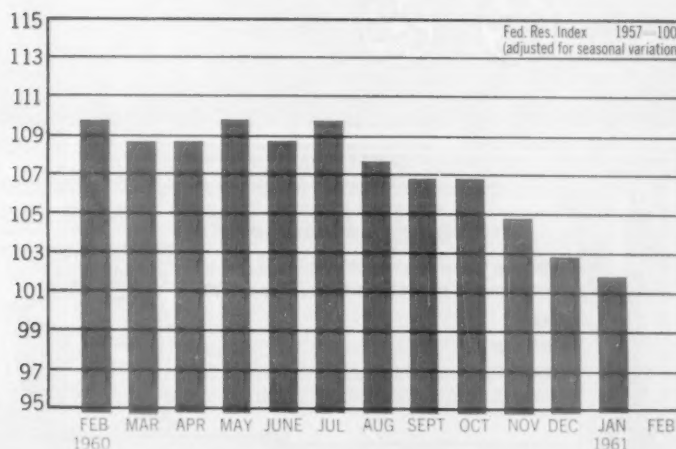
But steel is not getting much encouragement from the auto industry, one of its largest customers. Car output picked up in mid-February only to recede in the face of overloaded inventories.

The auto industry is revising its sales estimates for the current year. A figure of 6.4 million new cars is now being mentioned as the 1961 potential. Nevertheless, some car producers are still quoting figures ranging between 6.5 million and 7 million cars. Their estimates are based on probable replacement needs and on the probable investment of 4.5% of personal income for new cars. In addition, the popularity of compact cars this year may push up the overall total.

Industry observers believe that sales of 1961 compacts will account for between 30% and 40% of total automobile production. The percentage will probably be even higher for the calendar year

The Federal Reserve Board's Industrial Production Index for January fell a point to 102 (1947-49=100). While the durable manufacturing index also fell a point, non-durables dropped two points.

Industrial Production Index



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ONE COUPON	

Pulse of Business

PRODUCTION

1961 after new models are introduced this fall.

Another favorable factor in the new car field is the firming up of the used car market after more than a year of weakness. Stiffening of used car prices should make the new car market more attractive. March sales of new automobiles will be a good indication of the extent of the recovery.

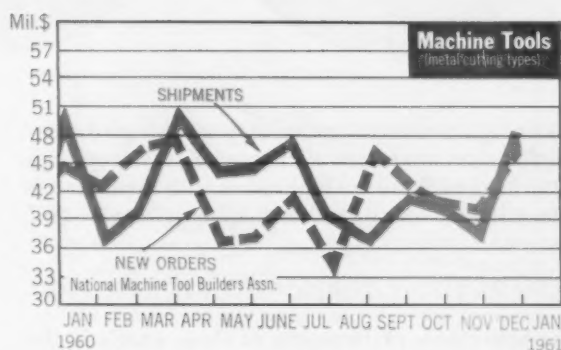
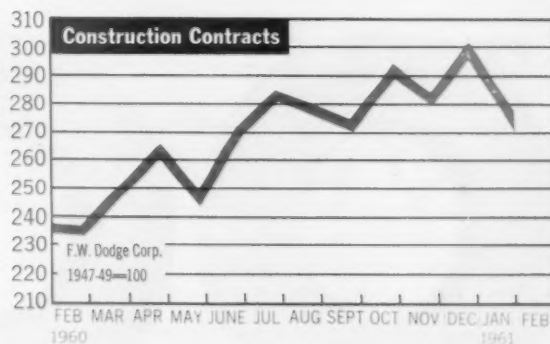
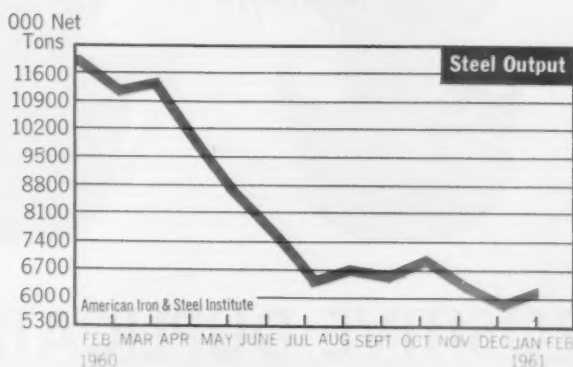
Capital expenditures, which have declined recently, may well turn around by the middle of the year. While the steel industry plans to cut spending for plant and equipment, other industries have revised their expansion and modernization plans sharply upward. At the same time, there is a moderate revival in the machine tool industry, with full recovery expected by the third quarter. The chemical, oil, utility, and pipeline industries are all planning capital goods increases.

The recent stepup in the space and missile program shows that the electronics industry has weathered the recession in much better shape than many had hoped.

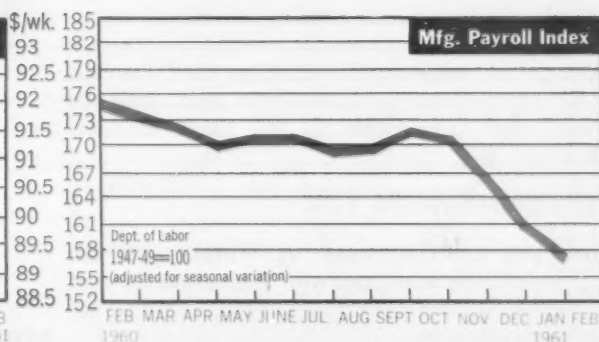
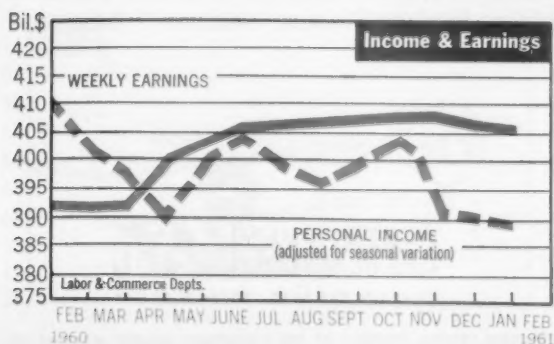
Electronic vendors of defense, space, science, computer and factory automation equipment all report sustained output for these customers. Orders from television, radio, and high fidelity manufacturers have been lagging, but even in these fields there is good reason to believe that an improvement is imminent.

With the increase in defense expenditures for both the current and the next fiscal years, electronic devices will definitely come in for a large share of additional business. Emphasis on the defense aspects will assure the industry of some measure of protection from imports.

Suppliers will be looking for this protection, especially since electronic production has become a billion dollar industry in Japan. Its




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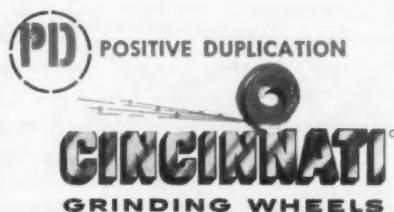
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Pulse of Business

TRADE

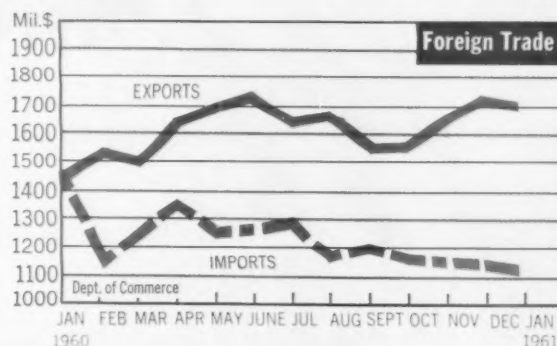
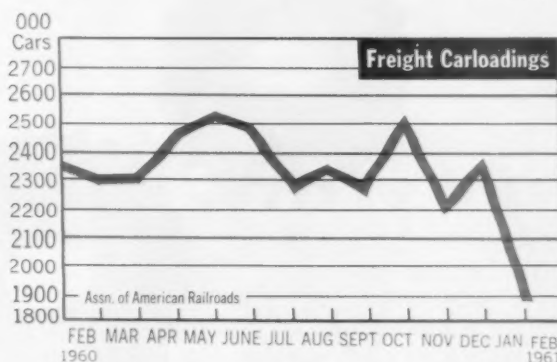
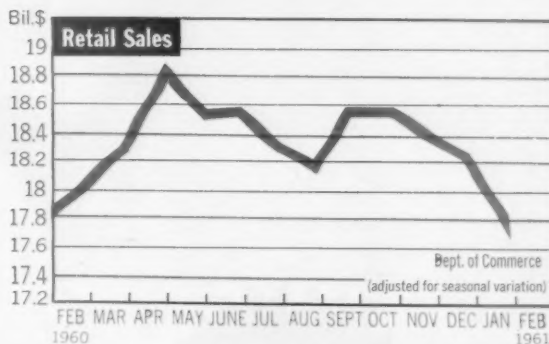
electronic output in the first nine months of 1960 was \$856 million, a 31% increase over the corresponding period of the previous year. While half of the nine-month total was in television and radio receivers, there were also significant gains in electronic computers, measuring and control equipment, receiving tubes, transistors, and amplifiers.

The oil industry also finds itself in a dilemma as a result of Administration pressure to lower the price of heating oil. The industry says price hikes are needed because of rising production costs and restrictions on the cheaper oil imports. But restrictions have been lightened and 100,000 more barrels of oil daily are being allowed into this country for the balance of the first quarter. Moderate weather will also have some bearing on heating oil prices, which may drop as soon as current oil stocks begin to rise.

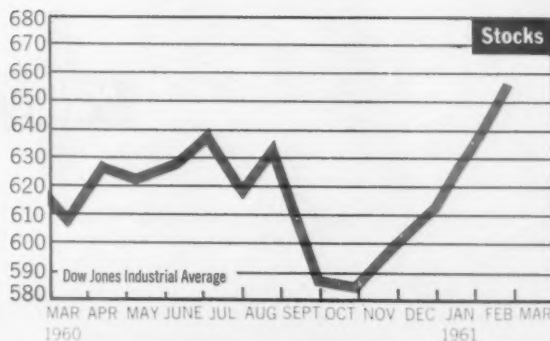
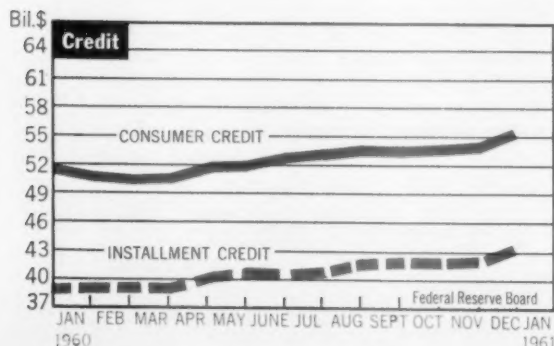
Business continues listless, says the business survey committee of the National Association of Purchasing Agents in its February report. Reasons cited "for lack of zip in the economy" are "curtailed auto production, the profit squeeze, and the weather."


However, the committee—headed by Andy Andrews, vice president-purchases of Allegheny Ludlum Steel Corp.—states that the recession may have already bottomed out. "New orders and production figures are bright spots" in the report, it notes.

The N.A.P.A.'s special question for the month covers the subject of inventories. Forty-eight percent of those who were surveyed plan to maintain the same inventory ratios during 1961 and 47% intend to carry less stocks. This means, says Andrews, "that narrow inventory levels will be with us for some time."



FINANCE





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By switching to a lead-treated steel, Thor Power Tool Company cut the cost of these idler gears in half. Aristoloy 4620 (lead*) provided high strength with excellent wear and shock resistance qualities. On gear cutting operations, machinability jumped from 35% to 66% (of B 1112). And there was a marked improvement in surface finish.

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Straws in the Trade Wind

► SLOWER INVENTORY LIQUIDATION—

In its final estimates of gross national product in 1960, the Commerce Department has revised downward the rate of inventory liquidation in the fourth quarter. Stocks were cut \$3 billion at seasonally-adjusted annual rates, instead of the \$4 billion estimated earlier. GNP for the year remained the same—\$503.2 billion—as did the fourth quarter rate—\$503.5 billion.

► **THEY NEVER GIVE UP**—Although business failures rose 4%, the number of new incorporations reached the highest level in seven months, according to the latest monthly report of Dun & Bradstreet. Failures advanced to 1404, more than any month in the last two years and at an annual rate of 61 per 10,000 enterprises. Nevertheless, new business incorporations for 49 states, excluding Alaska, rose 13.5% from the previous month to 16,554.

► **MATERIALS HANDLING DECLINE**—New orders for industrial materials handling equipment dropped 7% in 1960 from the previous year. The bookings index of the Material Handling Institute was 122.55 for the year (1954=100), down from 131.85 in 1959.

For the P.A.'s Hot File . . .

Competition between natural and synthetic rubber is growing fiercer. Although synthetics already fill 66% of U.S. rubber demands, its share may grow larger with the development of polyisoprene—a man-made, petroleum-derived substance with the same molecular structure as natural rubber. Capacity of polyisoprene production will probably reach 120,000,000 pounds annually in 1962, which should place an effective ceiling on the volatile price of natural rubber.

► **PLASTICS FIGHTING METALS**—A new high-strength plastic—Celcon—is joining Delrin in the fight to take over some of metals' traditional markets. Celcon, an acetal co-polymer, is made by a chemical process developed by Celanese Corp. of America. The company says that the market for such plastics will be 200 million pounds a year by 1970 in such industries as automotive, appliances, industrial equipment, containers, pipe, and hardware.

► **HINT AUTO SALES PICKUP**—An upturn in automobile sales may be coming. The latest Federal Reserve Board survey of consumer families planning to buy new or used cars within the next six months is equal to that in last year's survey. The percentage figures in October's survey were lower than the previous year. There was also no drop in reported car purchase plans between October and January, while there had been a substantial decrease reported between those months a year before.

► **USED MACHINERY SALES UP**—Dollar sales of used machinery in January increased 44% over the previous month, reports the Machinery Dealers National Association. This brings its index of used machine tool sales up 38.7 points to 126.5 (1957=100).

► **NEW KEFAUVER PROBES COMING**—The Senate Antitrust and Monopoly Subcommittee, headed by Senator Estes Kefauver (D-Tenn.), plans inquiries soon into the areas of identical bidding and price fixing on government contracts. The electrical equipment price fixing case and Chrysler conflict-of-interest situation have heightened the subcommittee's interest. A report of the bids submitted to the Defense Department in a 19-month period is now being prepared.

► **THE 'PRICE' OF COMPACTS**—The popularity of compact cars last year cost the steel industry about 700,000 tons of shipments to automobile companies. A vice president of Pittsburgh Steel Co. says in a company magazine that if the domestic automakers' production of 6,576,650 cars had not included any compact autos, the industry would have used

*a revolutionary
new wire stripper
from*

UTICA

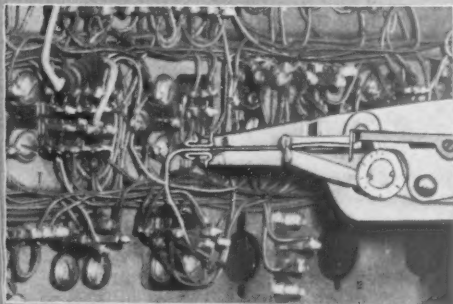
Strip fast and clean! Eliminate nicking! Reduce insulation marking to an absolute minimum! Handle any wire size from #12 to #26 (Teflon as well as most other solid or stranded wire insulations). And do it all with Stripwright®... Utica's revolutionary new wire stripper. There's never been anything like it. This versatile, lightweight, pistol-grip tool is engineered for efficiency and ease of handling in limited access areas as well as for open production lines. Stripwright is designed to the same high standards of quality as all other Utica tools. Hundreds are now in service.

Write for complete information.

Cam action dial adjusts strip diameter to the finest variation.

Plastic handles... strong, light, comfortable.

Slim nose design makes it possible to reach into the most closely confined areas, strip fast and sure.



Adjustable stop permits stripping of any length up to $\frac{1}{2}$ " per stroke.

UTICA DROP FORGE & TOOL DIVISION,
KELSEY-HAYES COMPANY, UTICA 4, N. Y.

Pulse of Business

Straws in the Trade Wind

700,000 tons more of finished steel—slightly under 5% of the 14,616,666 tons of finished steel delivered to auto companies in 1960, according to American Iron and Steel Institute figures.

► **RECENT PRICE CUTS**—These price reductions have been announced recently: all grades of regular and nitrogen bearing ferrochrome were cut 2 cents a pound by Union Carbide Metals Co.; individual price reductions on welding machines, electrodes, and supplies ranging up to 12.5% were made by Lincoln Electric Company; and the price of Teflon resin was lowered by the DuPont Company.

► **GOVERNMENT CONTRACTS TO JOB-LESS AREAS**—For the first time, total government procurement awards to surplus labor areas have been compiled. Figures for the third quarter of 1960 (the latest available) show that the government awarded \$444 million in contracts for supplies, services, and construction to these areas. The lion's share of the contracts was accounted for by the Defense Department, which issued \$407 million worth.

► **DOUBLE STANDARD IN OFFICES**—Fifty-two percent of the companies surveyed by the National Office Management Associa-

tion report that they give promotion preference to male office workers, even when female workers have equal qualifications. About the same percentage expect a higher level of job performance by males and 65% have qualms about placing a woman supervisor over men. Seventy-one percent say female employees tend to be more neurotic than males.

► **SEE UPSURGE IN REPRESENTATION POLLS**—A rise in the number of union representation elections in fiscal 1961 to the highest in history has been predicted by Stuart Rothman, general counsel of the National Labor Relations Board. In the first half of the fiscal year, 3421 elections were held, compared with 6633 during the entire 1960 fiscal year. Rothman says that secret ballot elections have been on the rise over the last several years.

► **INDUSTRIAL SUPPLY ORDERS DROP**—New orders for industrial supplies and machinery remained steady, according to the latest monthly report of the American Supply & Machinery Manufacturers' Association. Its seasonally-adjusted new business index leveled at 176 (July 1948=100) during last January. This indicator reflects new orders for production tools, equipment, and supplies placed by industrial distributors with their manufacturing sources.



Arthur H. Motley

QUOTE!

Subsidies to obsolescent and uneconomic industries and commodities must be abandoned and archaic tax laws which throttle industrial expansion must be reformed if we are to have greater economic progress and growth, says Arthur H. Motley, president of the Chamber of Commerce of the United States. Mr. Motley, who is also publisher of **Parade** magazine, says that present tax rates are too high and "the tax structure is anti-growth oriented." He notes also that "We should put a high premium on modernizing our plants and equipment. Greater freedom to charge off the cost of property would feed into the business till the cash to modernize. This would underwrite faster replacement and faster economic growth."

Purchasing Directors
tell us
**One-Carrier
Direct Service**
ends their
shipping worries.



No divided responsibility on service between points served by **DC**

D-C's 10,814 mile coast-to-coast system is under single-company ownership and management. This one-carrier control and one-carrier handling avoids delay—speeds your shipment, large or small, to on-time delivery—makes tracing quick and simple.

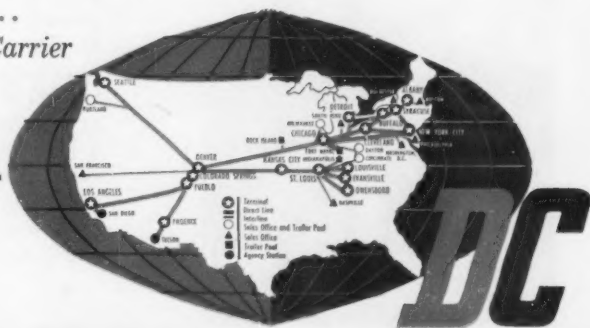
D-C is responsible for your shipment from pick-up to delivery, coast-to-coast or to a nearby city. Safe arrival is assured by experienced personnel and the latest in equipment and facilities **ALL THE WAY!**

Let D-C end your shipping worries...

Always ship D-C—the Dependable Carrier



DENVER CHICAGO TRUCKING CO., INC.
the **ONLY** direct coast-to-coast carrier!



Pulse of Business

The Trend of Prices

- Slight Pickup Noted In Nonferrous Buying
- Lead-Zinc Study Group To Probe Production Curbs

THERE has been a slight pickup in demand by purchasing agents for some nonferrous metals in recent weeks. Following months of reduced ordering, this minor upsurge has buoyed the hopes of suppliers that business will improve in the upcoming months.

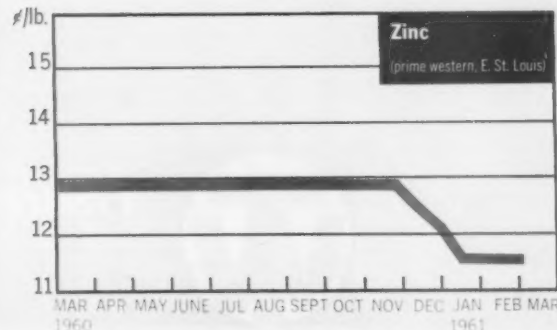
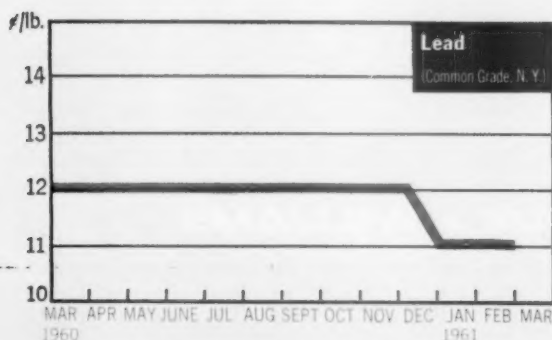
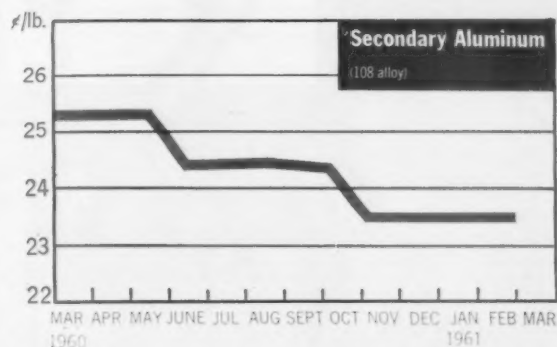
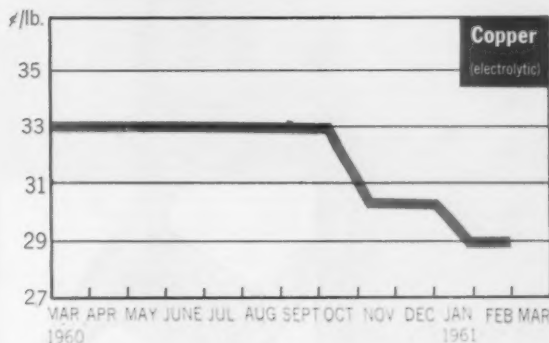
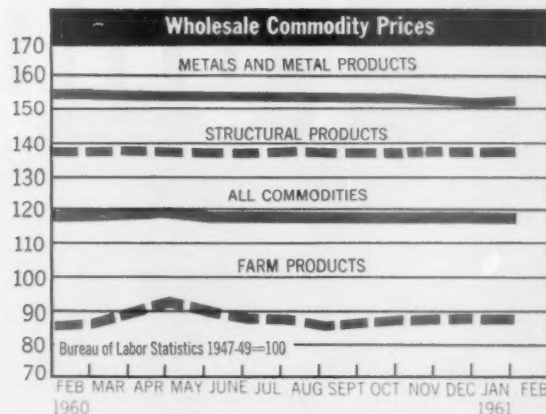
Here's how the picture shapes up in some of the more important commodities bought by P.A.'s:

Aluminum: New orders for aluminum are taking on a firmer tone. A larger number of inquiries and orders are now being issued by P.A.'s than in recent weeks.

Demand for aluminum sheet and plate is showing an improvement. These products constitute around 45% of total mill output and were in large measure responsible for the aluminum slump at the end of last year.

Lead: Lead sales last month were only slightly better than in January. Much of the buying was for prompt shipment in carload quantities at the average pricing basis. A meeting in Mexico on March 20 of the UN-sponsored Lead-Zinc Study Group may come up with new curbs on production and exports. Such a long-range program could reduce the amount of government aid needed by the domestic industry.

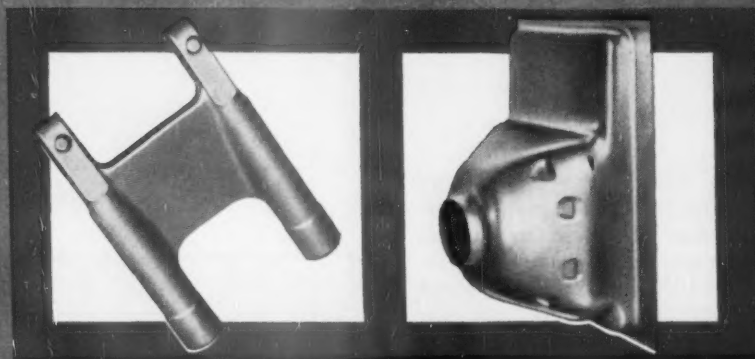
Copper: After a long period of sluggish buying and inventory reduction, a modest upturn in copper buying has developed. While no large-



FORGINGS

TRANSUE & WILLIAMS

STAMPINGS



From aircraft and missile forgings, to deep drawn stainless fat fryer tanks, are but a few examples of the wide range of the many components produced for all types of industry by T & W.

Because T & W engineering and production facilities are versatile, your requirements receive *specialized T & W treatment* designed to find better ways to reduce cost and improve quality. *To learn how T & W can help you, call or send us a print.*

in forgings: Sizes: 1 ounce to 500 pounds. Materials: Carbon and Alloy Steel, Non Ferrous and Stainless, Pure Molybdenum, Titanium and High Temperature Alloys. (Plain or Heat Treated).

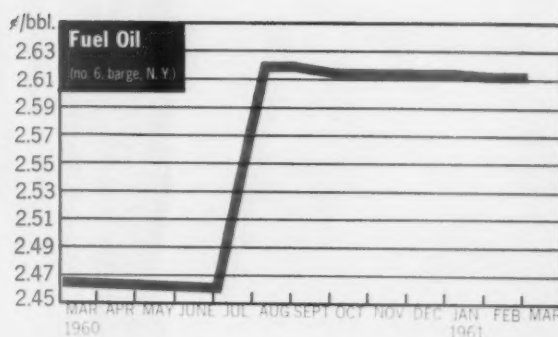
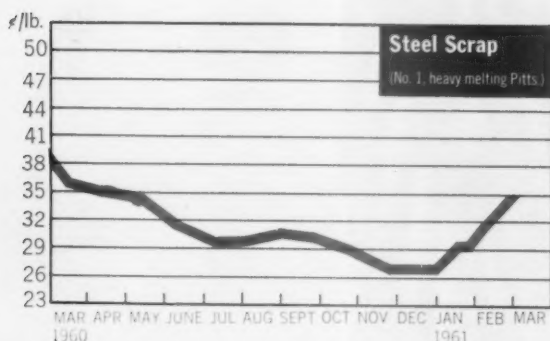
in stampings: Sizes: 3 inches by 3 inches, to 60 inches long, 40 inches wide and 16 inches in drawn depth. Materials: Steel, Stainless and Aluminum. (Blanking, forming, welding sub and final assemblies).



TRANSUE & WILLIAMS
ALLIANCE, OHIO

SALES OFFICES: Philadelphia, Chicago, Dallas
Olt Saybrook (Conn.), Detroit, Los Angeles

Pulse of Business More on Price Trends



scale increase in sales has taken place, there has been an advance over conditions prevailing in previous months.

Shipments of refined copper to American purchasing agents totaled 99,794 tons in January, up 8631 tons from the previous month. But stocks held by domestic producers, says the Copper Institute, jumped 4860 tons to 144,132 tons—the most since September 1958 and the fourth consecutive monthly gain.

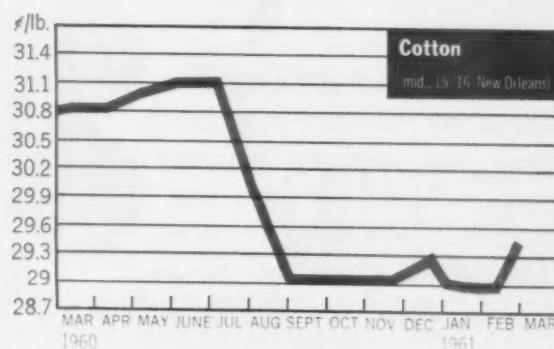
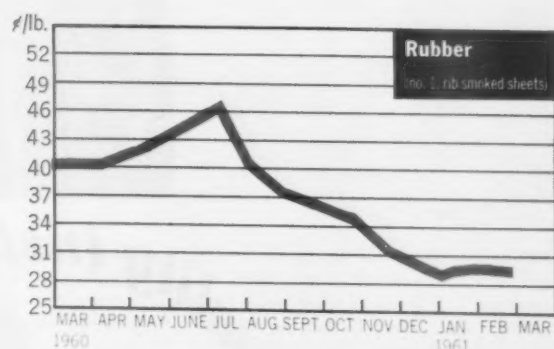
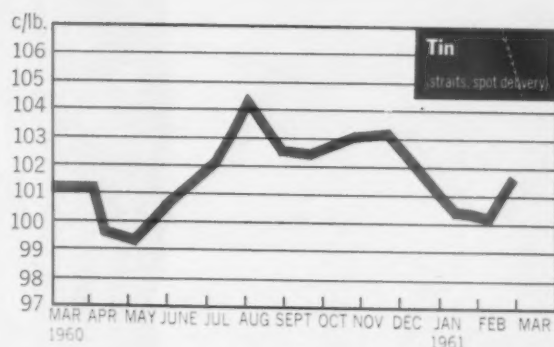
Zinc: The zinc market has been relatively quiet recently. P.A.'s for die casters have been holding back on new orders and reducing ton-nages in some cases.

The most recent cutback in zinc production was announced by New Jersey Zinc Co., which reduced output at its Palmerton, Pa. smelter by 15%. This reduction of around 1650 tons a month follows other cutbacks of approximately 3500 tons a month by other producers since the beginning of 1961.

Tin: The advance in tin prices in Singapore has improved the tone of the market in New York. Domestic prices recently have shown modest gains.

A new chemical process for depositing a protective tin coating on metal surfaces has been announced by the Shipley Company, Inc., Wellesley, Mass. The manufacturer claims that the process operates on lower temperatures than in hot-tin dipping, does not require electricity, and contains no cyanide.

Wholesale Prices: The Wholesale Price Index rose 0.3% in January to 119.8 (1947-49=100). The greatest percentage increase, however, was registered by farm products.

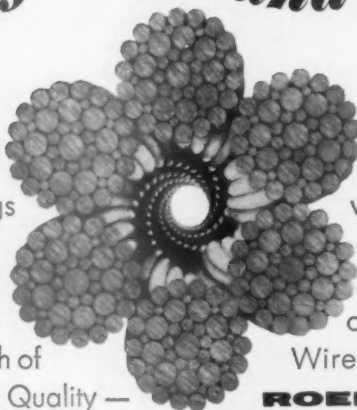




We put a lot of work into it
You get a lot of work out of it

quality inside and outside

Take a good look at the pictures. They show you where your savings really start — with the inner and outer uniformity of wires and strands. Unseen, but of utmost importance is the extra high strength of Roebbling Royal Blue Wire Rope. Quality —



inside and outside — is the extra working factor that pays off on the job for you. Find out more from your wire rope distributor, or write for free booklet to Roebbling's Wire Rope Division, Trenton 2, N. J.

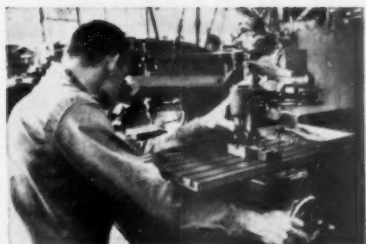
ROEBBLING



Branch Offices in Principal Cities
John A. Roebbling's Sons Division
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 Dunbeam die cast appliance part	 North Amer. Philips nylon coil form	 Dictaphone die cast circuit connector	 Westinghouse insert molded insulating screw	 Sylvania nylon TV tuner part	 Elec. Autolite die cast instrument gear
 Runson die cast lighter part	 Stanley die cast power tool part	 Samsonite Interplast hinged luggage closure	 GM acetate car radio part	 Union Carbide die cast flashlight part	 Argus die cast camera part
 Yale & Towne die cast lock part	 Western Electric Debrin phone dial part	<h2 style="text-align: center;">how many of these 25 GRC small parts ideas can you use in your business?</h2>		 General Electric die cast timer part	 Lionel die cast model train part
 Remington Rand insert cast sensing brush	 Scrip die cast mechanical pencil part			 Allen Bradley die cast & molded control parts	
 IBM insert cast-mold commutator brush	 Deterla die cast scale part			 Nash Reg. nylon adding machine part	
 Stewart Warner nylon speedometer gear	 Minneapolis- Honeywell die cast switch part			 Ford Motor die cast horn part	

Parts shown $\frac{1}{2}$ actual size



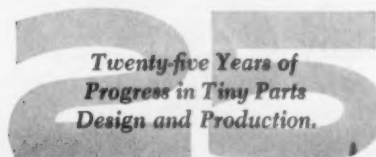
Section of our tool shop, where quality starts for GRC TINY ZINC ALLOY DIE CASTINGS and ENGINEERING THERMOPLASTIC MOLDINGS

They are, truly, Shapes of Progress...tiny components that mark Gries' significant and recognized strides in die casting and molding small parts. Each makes a better, more profitable product possible. Yet none could have been made with such high quality...so economically...without GRC's specialized capability: the combination of design experience and unique automated facilities.

What about your idea...your product? GRC gives you design flexibility you may never have thought possible...precision and savings thru 25 years of die casting and molding tiny parts exclusively. *No size is too small...no design too intricate to consider.*

We welcome your inquiries...and offer several significant booklets to help expand your design horizons. Won't you write?

NO SIZE TOO SMALL!
Maximum sizes up to $1\frac{3}{4}$ ", $\frac{1}{2}$ oz.



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WHY IBM USES



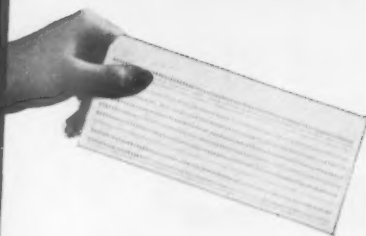
ARMOUR AMMONIA



IN HEAT TREATING



PRECISION PARTS



FOR DATA PROCESSING EQUIPMENT

Precise heat treating results are a must for vital components of the electronic marvels produced by International Business Machines Corp. in Rochester, Minnesota.

IBM heat treats about four million parts a year in Armour ammonia atmospheres. Heat treating processes used include carbonitriding, nitriding, annealing and brazing. A good example of one of these parts is the Geneva Star Wheel shown above, which must be precise and as wear-resistant as possible.

Helping to create consistently fine results is the uniform, high quality of Armour ammonia. Tested after filling to be at least 99.98% pure when delivered, every tank truck of Armour ammonia meets IBM's rigid standards for heat treating.

Armour ammonia has been used since the plant opened 2½ years ago. But this confidence goes back further. Armour worked closely with IBM engineers in planning the initial installation, preparing blueprints, and choosing the proper ammonia equipment and parts. Armour technical men also inspected the system and helped to get it under way and running smoothly.

Prompt delivery from Armour's South St. Paul plant is also important to IBM. Operating around the clock, IBM often requires same-day or next-day service—and they get it from Armour.

Call Armour for ammonia. High purity assured (every cylinder and tank truck tested to be at least 99.98% pure)...fast delivery (171 distribution points across the country)...expert technical service (whenever needed and at no cost).

AMMONIA SALES

Armour Industrial Chemical Company

One of The Armour Chemical Industries

110 North Wacker Drive • Chicago 6, Illinois

For More Facts Write No. 167 on Information Card—Page 32



See Continued Slump In Sales, Inventories

DEPARTMENT of Commerce analysts believe that sales will continue to deteriorate. While they look for some seasonal improvement as the weather improves, they do not see a recovery trend underway.

The inventory trend, the Commerce Department analysts suggest, is strongly tied to sales. If sales do not turn up, then inventory liquidation will continue.

The Commerce Department analysis of the present trend is that there will be a "good-sized" decline in inventories for the first quarter of the year. It points out that inventory trends are difficult to measure for a past period and are even harder to forecast. Nevertheless, it feels little hesitancy in projecting further declines for the current quarter.

The Kennedy Administration has made the first quarter a test period to determine whether to invoke all-out anti-recession measures. The policy to date has been to help hardship cases with a more generous policy of food and jobless pay relief. In addition, an effort has been made to start up the construction season earlier this spring.

If the seasonal factors spurred by government encouragement do not produce a strong recovery by mid-April, the administration has announced its intention to resort to tax cuts and deficit spending.

In recent weeks, the Kennedy Administration has directed a government-wide effort to absorb unemployment in the depressed areas of the country.

The White House announced a

general policy of aid to depressed areas and called on all government agencies to extend all possible aid. In many cases, this has already been done.

For example, the Secretary of Defense interpreted the White House instructions as a call to speed up the awarding of selected defense procurement and construction contracts. The

Small Business Administration has called on all its field offices to rush programs of procurement and lending assistance to small business in labor surplus areas. The SBA will be on the lookout to obtain a fair share of any new government contracts for smaller manufacturers within a distressed area.

At the same time, the SBA take a more lenient view toward qualifying recipients for its aid. There are rigid size standards for the classification of small businesses, but during the emergency, SBA will allow a differential of 25% of the standards used to determine which firms are eligible for assistance in all areas of substantial labor surplus. (Turn Page)

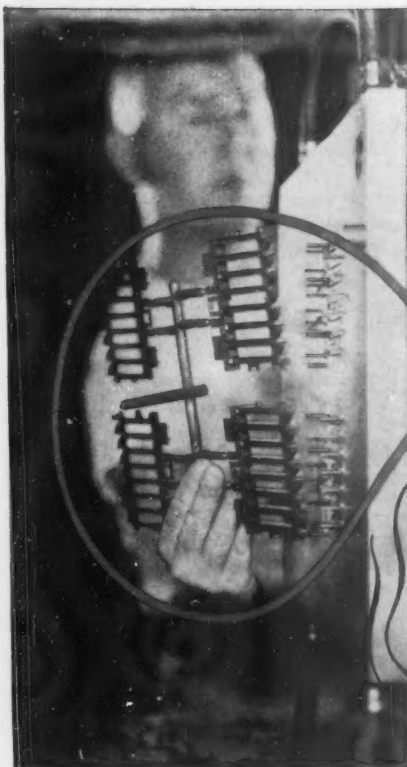
Space: What Goes on Up There

Of the 50 satellites and space probes that have been sent into orbit by the United States and Russia, 38 have been launched by the U.S. Twenty-seven are currently in orbit—of which 22 are American.

Space vehicles currently orbiting include 23 in Earth orbit (20 American and three Russian) and four in solar orbit (two American and two Russian). Here's the fact sheet issued by the National Aeronautics and Space Administration:

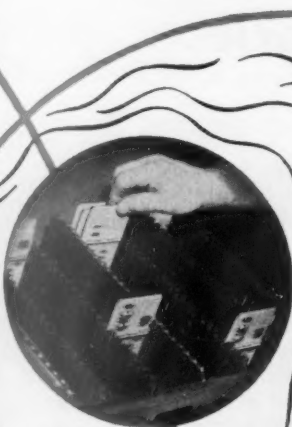
NAME and COUNTRY	LAUNCH DATE	TRANSMITTING
Explorer I (US)	Jan. 31, 1958	No
Vanguard I (US)	Mar. 17, 1958	Yes
*Lunik I (USSR)	Jan. 2, 1959	No
Vanguard II (US)	Feb. 17, 1959	No
*Pioneer IV (US)	Mar. 3, 1959	No
Explorer VI (US)	Aug. 7, 1959	No
Vanguard III (US)	Sept. 18, 1959	No
Explorer VII (US)	Oct. 13, 1959	Yes
*Pioneer V (US)	Mar. 11, 1960	No
Tiros I (US)	Apr. 1, 1960	Yes
Transit I-B (US)	Apr. 13, 1960	No
Spacecraft I (USSR)	May 15, 1960	No
Midas II (US)	May 24, 1960	Yes
Transit II-A (US)	June 22, 1960	Yes
NRL Satellite (US)	June 22, 1960	Yes
Echo I (US)	Aug. 12, 1960	Yes
Courier I-B (US)	Oct. 4, 1960	Yes
Explorer VIII (US)	Nov. 3, 1960	No
Tiros II (US)	Nov. 23, 1960	Yes
Samos II (US)	Jan. 31, 1961	Not Available
Sputnik VII (USSR)	Feb. 4, 1961	No
Sputnik VIII (USSR)	Feb. 12, 1961	No
*Venus probe (USSR)	Feb. 12, 1961	On Command
Explorer IX (US)	Feb. 16, 1961	No
Discoverer XX (US)	Feb. 17, 1961	No
Discoverer XXI (US)	Feb. 18, 1961	Yes
Transit III-B (US)	Feb. 21, 1961	Yes

*In solar orbit; others are in Earth orbit.

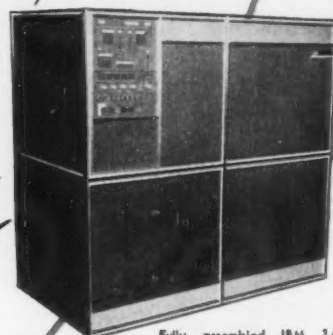


Thermoplastic card guides for IBM 1401 processing unit, ejecting from precision molding dies at Quinn-Berry Corporation, Erie, Pa.

NERVE CENTER OF
"Electronic Mathematician"
 protected by . . .
PRECISION CARD GUIDES



Printed circuit cards shown above inserted in molded card guides which prevent cards touching each other, help steady cards during shipment and protect cards during thermal changes.



Fully assembled IBM 1401 processing unit, nerve center of IBM 1401 data processing systems.

Molded of LEXAN® Thermoplastic
 by *QuinnBerry*

CHELSEA 50, Mass.
 Joseph Leader
 68 Marlborough Street
 Turner 4-3484

DETROIT 35, Mich.
 W. J. Montgomery Co.
 16577 Meyers Road
 Diamond 1-3454

EAST ROCHESTER, N. Y.
 Dynatherm, Inc.
 607 West Commercial Street
 Phone: Ludlow 600-80

KNOXVILLE, Tennessee
 Melloy Sales Inc.
 P.O. Box 3207—Zone 17
 2643 Kingston Park S.W.
 IBM Bldg.
 Phone Knoxville 522-5911

MILWAUKEE 13, Wis.
 John Weiland, Jr.
 7105 Grand Parkway
 Greenfield 6-7161

ARDMORE, Pa.
 Austin L. Wright Co.
 P. O. Box 561
 1 W. Lancaster Ave.
 Midway 2-5113

In the IBM 1401 processing unit, nerve center of IBM 1401 data processing systems, it is of paramount importance that Card Guides help maintain card position during movement and thermal changes.

Quinn-Berry's skilled precision mold design and engineering teams up with experienced press room operation to meet IBM close tolerance specifications. Skilled craftsmen mold IBM Card Guides of Lexan® polycarbonate resin, a product of General Electric Plastics Division, to meet the most rigorous requirements. The result—parts which have excellent dimensional stability, extreme resistance to impact and which are self extinguishing.

Your requirements for precision molded thermoplastic parts can be fully satisfied at Quinn-Berry—place them with us in full confidence. Here, the Unusual is Routine.



WE FLY TO SERVE YOU FASTER!

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CUSTOM MOLDERS
 OF ALL TYPES OF
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For More Facts Write No. 168 on Information Card—Page 32

Washington Report continued

Another example of government anti-recession action is the early release of federal-aid funds in the federal highway program. The release applies to money allotted for use in the final quarter of the current fiscal year, which under normal circumstances would become available for obligation by the states after April 1.

The Secretary of Commerce released these funds and called on the Governors of the states involved to step up the highway programs to the fullest extent possible. And the Secretary of Interior has put the design and specification staff of the Bureau of Reclamation's engineering center on a six-day, 58-hour week to speed plans for reclamation projects.

Obviously, the actions taken do not increase the total outlay by the government. But they do get the contracts out a little earlier than under normal routine.

The nature of government action taken during the current phase of recession is basically to prod the economy. However if it becomes necessary, the Kennedy Administration is prepared to fully underwrite a recovery program.

The Administration is also seeking to lower interest rates as a part of the general effort to encourage investment and trade. The Federal Reserve System, for the first time in 10 years, has begun purchasing U.S. Government notes and bonds of varying maturities in the open market.

The effect of such government buying of longer-term paper is to increase the price. Such increases result in a lower effective rate of interest. As the market adjusts to lesser interest rates on government bonds and notes, a similar trend develops for other notes and bonds.

During past periods, a reduction in interest has tended to encourage greater investment in inventory. This was especially true when there was a general market anticipation that prices

would work higher.

The current outlook is for prices to hold at present levels, at least until the business recovery is fully underway. Only moderate price adjustments are anticipated when the upswing in business does take place.

A further and more significant factor is the advance in inventory management techniques aimed at holding inventory levels to a minimum. As the time cycle for holding inventories is shortened, inventory policies are less likely to be affected by money rates or price trends.

• Economic Conditions Are Key to Final Wage Bill

The final form of the legislation to increase minimum wages and extend coverage to 4.3 million additional workers will probably depend on the state of the economy when the measure comes up in Congress.

President Kennedy has proposed an increase from the current \$1 minimum to \$1.15 minimum the first year, \$1.20 in the second, and \$1.25 thereafter. This measure is being pushed in his anti-recession package.

It is generally anticipated, however, that by the time the bill is ready for final action the recovery cycle will be well underway. Both the U.S. Chamber of Commerce and the National Association of Manufacturers have spoken up in opposition.

However, the Democratic campaign platform and President Kennedy are strongly committed to increase wage minimums and extension of the law to cover many additional occupations, such as retailing and service establishments.

Enactment by Congress of some form of an increase in minimum wages is considered likely. But the form that the final bill will take will depend on how much urgency President Kennedy is able to muster in the months ahead. The state of the economy at that time will be the vital factor.—A. N. Weeksler.

POKER? Play to win!



How would you play this hand?

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Here's a sure winner from FORD:

Ford pays half your fuel bills for a full six months (or 400 tractor hours) on the purchase of any new Ford or Fordson diesel tractor.

This offer, made possible by the amazing fuel-saving performance of these low-priced diesel tractors, expires March 31, 1961.

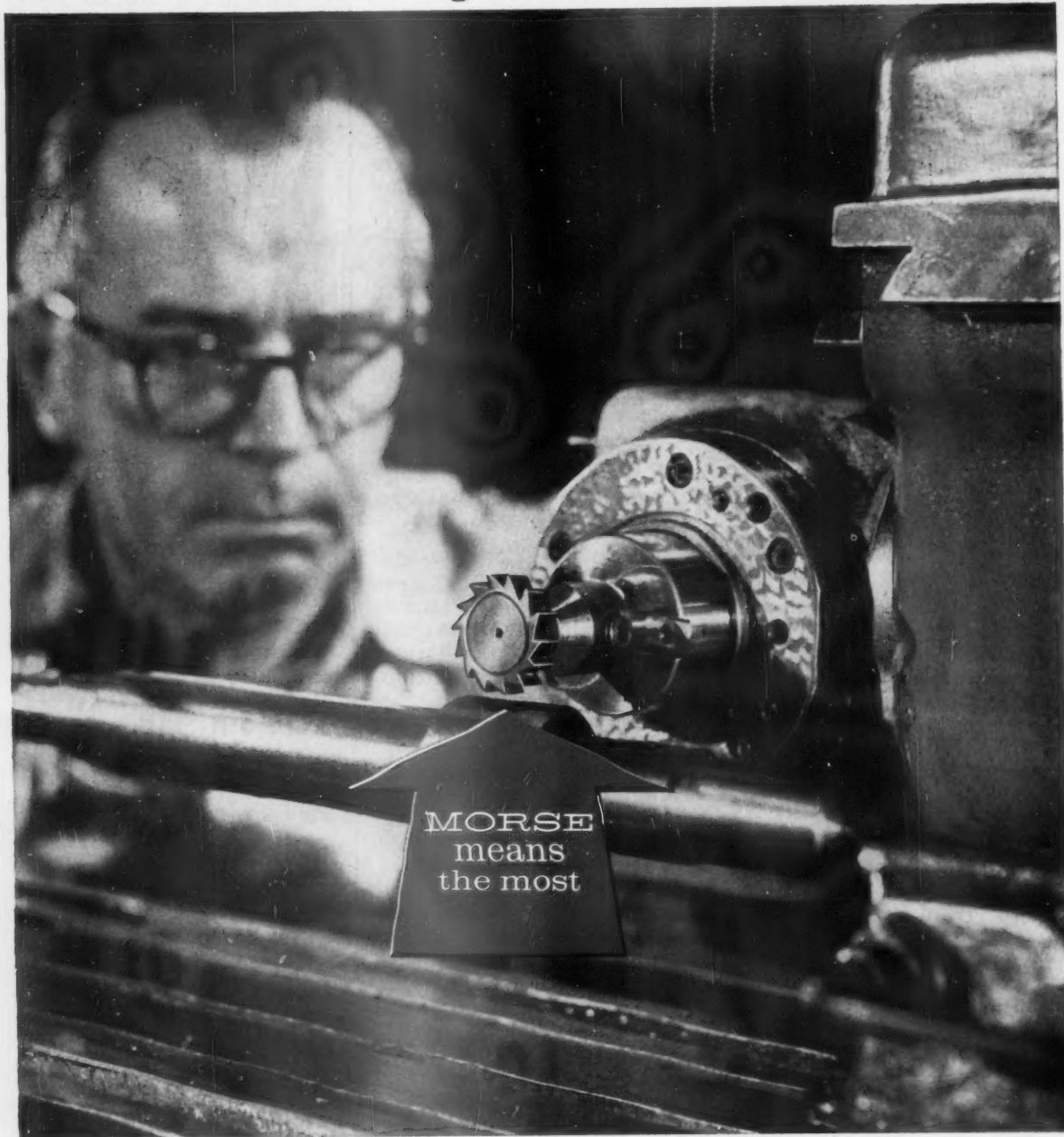
No "hidden" price increase... no tricks of any kind. See your Ford Tractor Dealer for all the money-saving details!

**Tractor and Implement Division,
Ford Motor Company,
Birmingham, Michigan**



For More Facts Write No. 169
on Information Card—Page 32

with men who know cutting tools...it's **MORSE** everytime



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SEE YOUR NEARBY MORSE DISTRIBUTOR

MORSE

MORSE TWIST DRILL & MACHINE CO.
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For More Facts Write No. 170 on Information Card—Page 32

Air Freight Rate Reductions Boost Foreign Trade

SUBSTANTIAL reductions in air freight rates, which will probably average at least 40%, will soon give foreign trade a shot in the arm.

There is little disagreement among the international airlines, and the governments behind them, that drastic cuts are now desirable in order to capture a much greater share of traffic from surface transport. The main argument revolves around how such cuts should be made.

During the past ten years, there has been no spectacular expansion of international air freight to match the growth which has taken place in passenger traffic. The greatest development in air freight rates has taken place inside the United States, where domestic rates are about a third lower than rates for international traffic.

Now, however, freight is a necessary element in profitable airline operation instead of a useful, but optional, extra. This is largely due to the advent of the big jets with huge cargo capacity (for example, the Boeing 707 has a freight capacity of four tons) and the conversion of propeller aircraft into freighters.

Thus the DC7F has become obsolescent as a passenger aircraft long before its useful life has expired. But it can be converted into a 15-ton capacity freighter for about \$300,000. A much greater carrying capacity is therefore becoming available throughout the world; to attract the cargo to fill it all airlines are

now willing to follow the U.S. example and cut their rates.

The current argument boils down to this: some airlines want to scrap the present scale of charges based on what the traffic will bear in favor of charging solely by weight. Others on the other hand, want a mixed system but with the present classifications simplified.

The "weight only" advocates are principally American airlines and are led by Pan American, Seaboard and Western, and Trans World Airlines. They want to go after the really big loads and so they favor reductions of about a third for small

packages which rise to a half for larger ones. Pan American is even prepared to go further and give a reduction of 63% for loads of 7½ tons and more.

The smaller airlines recognize that the American proposals would place the air cargo agent in a key position, as he is in the U.S. He would consolidate small packages of cargo into 7½-ton lots to secure the big discounts and would thus ignore the freight capacity of the passenger aircraft—the only capacity which many of the airlines in the smaller countries possess.

For reasons of national prestige, therefore, the inevitable compromise solution is likely to be the outcome of the present discussions. Whatever the decision, purchasing agents who buy imports will gain a big advantage of greater flexibility at lower cost. Although the new air freight rates are still likely to be higher than express surface rates, the savings which air gives on inventories, handling, packing, and quick turnover could be very important to many buyers.

(Turn Page)



With the advent of large-scale jet passenger transportation, many airlines are converting their piston aircraft into freighters. This all-cargo DC7F has a cargo capacity of 30,000 pounds.

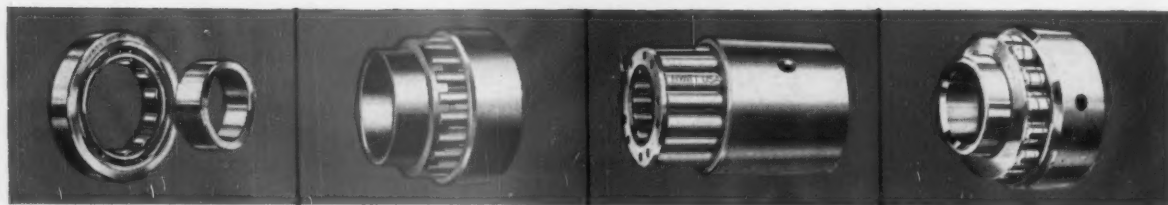
GREATER LOAD CAPACITY

SIMPLE
AS

ABC



Let HYATT bear down on your bearing problems. You can be sure of bearings engineered to your exact requirements by leading experts in the bearing business. It takes cylindrical bearings to carry high radial loads in cramped quarters . . . and HYATT HY-ROLLS are the most complete line of cylindrical bearings in America. Inner and outer races can be omitted from separable types. Shouldered-race types are also available. Whatever your bearing problem, call your HYATT Sales Engineer. Depend on America's most experienced bearing manufacturer.



METRIC SERIES

Heavy radial loads . . . light or intermittent thrust loads? Use high capacity HYATT cylindrical roller bearings.

INDUSTRIAL INCH

These HYATTS fill the bill where large-diameter shafts are usually employed for slow-moving, heavily loaded machinery.

TRUNNIONED ROLLER

HYATTS specially designed for industrial trucks, textile machinery, gear pumps, conveyors, hoists, agricultural equipment, etc.

WOUND ROLLER

A HYATT design—three-part separable bearing which provides maximum resistance to shock, abrasion and fatigue.

SIZES

You'll find HYATT BEARINGS in a wide variety of types and sizes from $\frac{3}{4}$ " OD to 14" OD.

LOADS

HYATT BEARINGS are designed for any radial loads ranging from the lightest lawnmower to heavy-duty types used in industrial cranes—up to 103,000 pounds.

SPEEDS

From slow-moving construction equipment to jet engines for planes reaching supersonic speeds, use HYATT BEARINGS. Top speed design—50,000 RPM.

TEMPERATURES

HYATT BEARINGS are designed for operation from below zero to 450° F.—using heat-treated conventional steel. Special high-temperature steels can be used.

Replacement bearings available through United Motors System and its authorized bearing distributors

THE RECOGNIZED **LEADER** IN CYLINDRICAL BEARINGS

HYATT

HY-ROLL BEARINGS

FOR MODERN INDUSTRY

HYATT BEARINGS DIVISION, GENERAL MOTORS CORPORATION, HARRISON, N. J.



High Costs Blamed For U.S. Trade Problems

Two recently published studies examine the nature of the entire import problem. In the first Hal Lary of the National Bureau of Economic Research rejects the usual explanation that high American costs have been the cause of rising imports and that a devaluation of the dollar is the natural remedy.

He suggests instead that since the early 1950's, a number of independent factors combined to worsen the U.S. trading position. One was the slow response of American motor manufacturers to the changing taste in cars. This cost the United States automobile manufacturers about \$1 billion a year, either through increased imports of foreign cars or through the loss of export markets. Another has been the loss of export markets for cheap coal (as a result of European import restrictions) at the same time that oil imports were increasing.

Lary estimates that the underlying deterioration in the United States balance of payments has amounted to \$6 billion annually. He suggests, however, that most of this had already been made good by the end of 1960, because of the spectacular increase in U.S. exports to the rest of the world.

In the second study, "The Dollar Problem: A Reappraisal," Sir Donald MacDougall shows that the cost of labor per unit of output during the 1950's actually rose faster in Britain, Holland, and Sweden than in the United States. German and Belgian costs rose at about the same rate as the U.S. Only Japan, Italy, and France (after allowing for the effect of devaluation) achieved a slower increase than the U.S.

Sir Donald's conclusion is that the remarkable 20% annual in-

crease in U.S. imports of manufactured goods during the late 1950's was the result of exceptional circumstances. The opportunities for bigger imports from Europe and Japan had been gradually accumulating over a quarter of a century beforehand, but the United States could not take advantage of them until recently.

Why? For a long while, the high tariff barriers of the 1930's were in the way. Then came World War II. Finally in the

post-war period, potential exporters to the U.S. suffered from shortages of materials and manufacturing capacity.

Therefore in recent years—after the non-dollar countries had first made their goods cheaper by devaluing their currencies, and then stepped up their drives on dollar markets—it was to be expected that the results would come with a bang. But from now on, Sir Donald predicts, there will be a much slower increase in U.S. imports.

New Products From Europe

Here are a few of the more recent developments from European industry:

Time Control—This apparatus, made by Telefonaktiebolaget (L. M. Ericsson, Stockholm 32, Sweden), accurately measures the time a metal component is actually being subjected to the action of a machine tool. It operates by measuring the thermopotential which is generated when the tool cuts into the metal. The two metals then act as a thermocouple, with the heat causing an electric current to flow for a time proportional to the machining time.

Versatile Voltmeter—A new voltmeter, made by Muirhead & Co. (Beckenham, England), has been designed to bring higher accuracies over the wide frequency range to the test bench. It measures the root-mean-square voltage to an accuracy of 0.05% from 60 millivolts to 300 volts over a frequency range from 30 cycles per second to 5000 cycles per second.

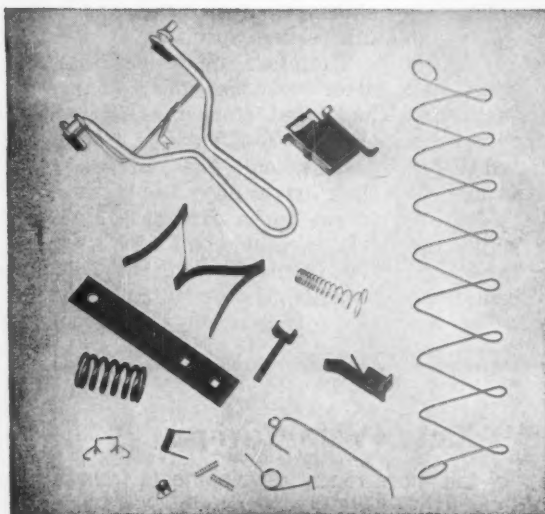
Metal Coating for Ceramics—A method of covering ceramic materials with metallic coatings at relatively low temperatures has been developed by Thomson-Houston (173 Blvd. Haussmann, Paris 8, France). It forms a primary metallic layer on the ceramic by covering it with a paste and baking the whole at a temperature of 1400 degrees C. A second layer of metal may then be applied by using conventional electrolytic methods.

Electroplating—Chromium and nickel can now be successfully electro-deposited to powdered metal components, says Altalanos Geptervezo (2 Kuny Domonkos Utca, Budapest 5, Hungary). The components are subjected to an atmosphere of superheated steam, thus coating them with a layer of iron oxide which prevents the inner structure from chemical attack by the plating metal.

Electrolytical Machining—A process of electrolytical machining, which can be applied to various planing, rectifying, and sharpening machines, has been developed by Ateliers des Charmilles S.A. (109 Route de Lyon, Geneva, Switzerland). It is based on a localized and controlled dissolution of the metals by electrolytical means.

From Hunting to Hi-Fi . . .

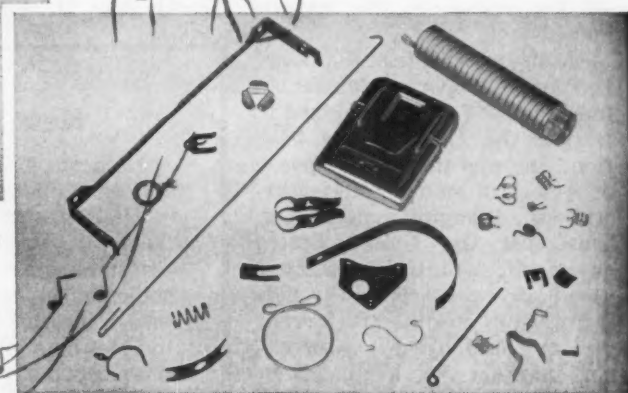
There's a Spring in your Hobby



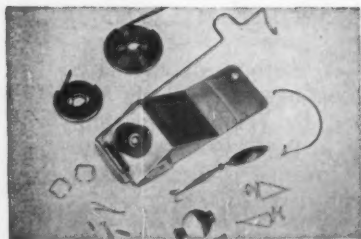
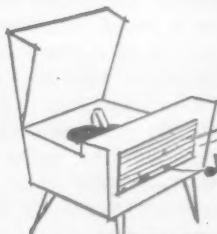
HUNTING — Ammunition clips, trigger springs and gun parts for civilian and military use; even a precision sling shot frame.



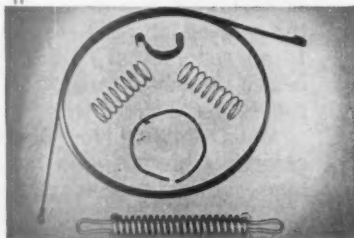
The booming market of hobbies and sports is typical of the far-reaching use of A.S.C. products. Often small but always important, springs make better products possible — and A.S.C. Divisions make better springs through constant research and experiment. Write for "The Picture Book of Springs."



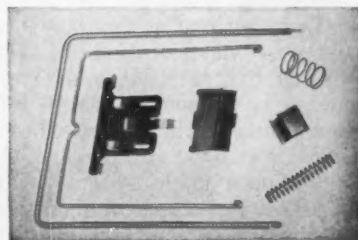
MUSIC — Coils and clips for radio, TV and record players; violin mute springs, guitar levers, springs for cornets, pianos, organs.



FISHING — power springs for reels; wire and flat springs for rod holders, lures; and a frog holder frame.



BOATING — starter springs and parts for outboard motors; shock-absorber spring for trailers; rope tightener spring.



PHOTOGRAPHY — view finder frames, shutter springs and stampings for movie and still cameras.



Associated Spring Corporation

General Offices: Bristol, Connecticut

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.

B-G-R Division, Plymouth and Ann Arbor, Mich.

Seaboard Pacific Division, Gardena, Calif.

Cleveland Sales Office, Cleveland, Ohio

Canadian Subsidiary: The Wallace Barnes Co., Ltd., Hamilton, Ontario and Montreal, Quebec

Raymond Manufacturing Division, Corry, Penna.

Ohio Division, Dayton, Ohio

F. N. Manross and Sons Division, Bristol, Conn.

San Francisco Sales Office, Saratoga, Calif.

William D. Gibson Division, Chicago 14, Ill.

Milwaukee Division, Milwaukee, Wis.

Dunbar Brothers Division, Bristol, Conn.

Wallace Barnes Steel Division, Bristol, Conn.

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Purchasing Follow-up

AMA Schedules Extensive Series Of Purchasing Seminars

A SERIES of workshops and orientation seminars for the next nine months, has been scheduled by the purchasing division of the American Management Association.

Samuel C. Farmer, staff director of the division, told PURCHASING Magazine that some of these sessions will be videotaped so that other purchasing agents will be able to see what took place. In addition, he said, some of the programs this year are new. The schedule of workshops (W) and orientation seminars (O) through September follows:

Mar. 13-15, (W) Organization and Management of the Purchasing Function, Chicago.

Mar. 13-17, (O) Organization, Planning, and Controlling an Integrated Materials Management Program, Saranac Lake.

Apr. 3-5, (W) Managing an Effective "Make or Buy" Program, New York.

Apr. 10-12, (W) Purchasing Cost Management and Value Analysis, New York.

Apr. 24-26, (O) Organization and Management of the Purchasing Function, New York.

May 1-5, (O) Organization, Planning and Controlling an Integrated Materials Management Program, San Francisco.

May 15-17, (W) Measuring, Appraising and Improving Purchasing Performance, Chicago.

May 15-17, (W) Purchasing Cost Management and Value Analysis, New York.

May 22-24, (W) Organization and Management of the Purchasing Function, Atlanta.

June 12-14, (O) Organization and Management of the Purchasing Function, New York.

June 19-23, (O) Organization, Planning and Controlling an In-

tegrated Materials Management Program, Saranac Lake.

June 26-28, (O) EDP Applications to Purchasing Operations, New York.

July 10-14, (W) Value Analysis Training, Saranac Lake.

July 26-28, (W) Organization and Management of Traffic Within the Purchasing Department, Colgate, Hamilton, N.Y.

July 26-28, (W) Organization and Management of Purchasing in the Smaller Company, Colgate.

July 31-Aug. 4, (O) Organization and Management of the Purchasing Function, Colgate.

Aug. 14-16, (O) Measuring, Appraising and Improving Surplus Salvage and Scrap Disposal,

Colgate.

Aug. 14-16, (W) Improving Purchasing Cost Management with Value Analysis, Colgate.

Aug. 21-25, (W) Purchasing Vice Presidents' Seminar, Saranac Lake.

Sept. 6-8, (W) Organization and Management of the Purchasing Function, New York.

Sept. 11-13, (W) Measuring, Appraising and Improving Purchasing Performance, Chicago.

Sept. 11-13, (W) Managing Multiplant Purchasing, Chicago.

Sept. 11-13, (O) Organization and Management of the Purchasing Function, Chicago.

Sept. 18-20, (W) Advanced Purchasing—The Chief Purchasing Executive's Job, N.Y.

Sept. 18-22, (O) Integrated Materials Management, Saranac Lake.

Sept. 27-29, (O) Purchasing for Profit—Purchasing's Role in the Corporate Structure, N.Y.

When Labor Contracts Expire

March

Industry	Company	Union
Chemicals	Wyandotte Chemicals	OCAW
Food	Levers Brothers	OCAW and ICW
Machinery	Food Machinery & Chemical	IAM
Metals	Calif. Metal Trades Assoc.	IAM
Paper	Sealright-Oswego Falls	Papermakers
Petroleum	Atlantic Refining	Ind.
Stone, Clay & Glass	Johns Manville	ICW
Textiles	Celanese Corp. of America	TWUA
Transportation Equipment	Avco Manufacturing	UAW
Utilities	Commonwealth Edison	IBEW

April

Industry	Company	Union
Chemicals	Stauffer Chemical	UMW
Food	Associated Milk Dealers	Teamsters
"	Kellogg Co.	AFGM
Foundries	Chicago Foundrymen's Assoc.	IMFW
Lumber	Minnesota & Ontario Paper	IWA
Petroleum	Tidewater Oil	OCAW
Retailing	R. H. Macy	RWDSE
Rubber	Firestone Tire & Rubber	URW
"	Goodyear Tire & Rubber	URW

FASTENOMICS

TIPS ON FASTENER APPLICATIONS BY STANSCREW

Socket Screw Standards Changed

Check Dimensional Revisions Now to Avoid Extra Costs

Important changes are now in progress in the socket screw industry. Every user should know the details and take appropriate action to avoid higher costs in the future. As a public service, Stanscrew is issuing this progress report.

New Standards Adopted

Exhaustive industry-wide studies, begun in 1954, culminated in 1959 with the adoption of new dimensional standards for socket head cap screws. Standard Screw participated in these studies and concurred in industry recommendations. The new standards, known as the "1960 Series", include changes in head diameters, socket sizes, and thread lengths.

Advantages of New Design

The "1960 Series" has been carefully engineered so there is functional uniformity for all sizes, particularly as applied to wrenching areas and to the relationship of head diameters to body diameters. It offers these important advantages over the previous design, known as the "1936 Series":

1. Larger wrenching area permits applications of clamping force . . . provides maximum utilization of fastener's inherent strength.
2. Provides increased bearing surface under the head . . . up to 233% more.
3. Minimum indentation . . . particularly important with softer metals.

What's Available When

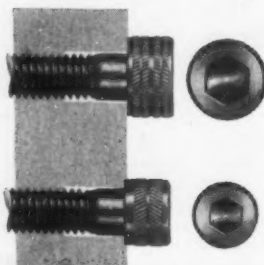
When the "1960 Series" was announced in 1959, it was believed it would become the only standard as of Jan. 1, 1961 and, thereafter, all "1936 Series" would be available only on special order. As previously announced, all sizes in the "1960 Series" are being supplied as standard. However, to make the transition as easy as possible, Stanscrew and other leading producers have extended the changeover period for certain sizes of the "1936 Series".

These are the sizes . . . $\frac{5}{16}$ ", $\frac{7}{16}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ " and 1" . . . for which the new standards include a change both in head diameter and socket width across flats. Until Jan. 1, 1963 both the "1936 Series" and "1960

Series" will be considered standard in these six sizes.

For all sizes, however, thread lengths are now being manufactured to "1960" standards. Once current inventories are depleted, "1936 Series" thread lengths will be available on special order only. Based on exhaustive surveys, this will prove no problem in the overwhelming majority of applications.

In some sizes . . . #1, #2, #4, #6, and #8 . . . head diameters are the same, but there has been a change in the socket width. In these sizes, current production is to "1960 Series" dimensions. These sizes are also available in the "1936 Series" until present stocks are depleted, but thereafter only on special order.



NEW 1960 SERIES

OLD 1936 SERIES

Change In Your Designs Essential

This industry program makes it essential that you review product designs to avoid future difficulties. All products now on your drawing boards should incorporate the "1960 Series" socket cap screws wherever possible. And, during the next two years, it is recommended you take advantage of model changes or other opportunities to change existing applications of the "1936 Series" to the "1960" standards. Failure to make provisions could result in procurement difficulties or the higher costs of non-standard items.

Complete Design Information Available

Stanscrew has prepared an up-to-date brochure giving complete information on all steps in this important transition, together with complete design data on both the "1960" and "1936 Series". You can obtain your copy through your local Stanscrew distributor. Call him today.



STANSCREW FASTENERS

CHICAGO | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS

HMS | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT

WESTERN | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois

For More Facts Write No. 173 on Information Card—Page 32

The nearsighted **MISTER MAGOO** says . . . "1956? A banner year! Princess Grace was married—unfortunately I couldn't attend—and General Electric invented the Power Groove Lamp. Happy birthday, Power Groo—Bowser! drop that salami! You've taken enough bites out of it already!"



© UPA PICTURES, INC.

G-EXCLUSIVE! Power Groove® cuts your initial costs as much as 40¢ a sq. ft.

General Electric Power Groove Lamps start saving you money the day you specify them.

By any standard of comparison, they give you more light—with fewer lamps—than any other fluorescent type or brand. If you're building or remodeling, Power Groove Lamps can save you up to 40¢ per square foot of lighted floor area right off the bat.

Just the beginning. With fewer lamps, fixtures and ballasts overhead, your maintenance men spend less time on ladders.

Your employees' increased efficiency helps pay for Power Groove Lamps. If every reject makes you wince, consider how improved lighting—at no extra cost—might spruce up your operation. Perhaps you

For More Facts Write No. 174 on Information Card—Page 32

MARCH 13, 1961

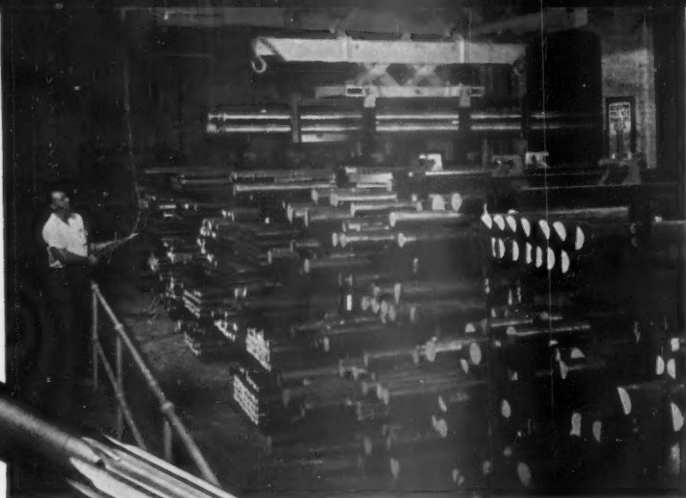
can remove the individual lamps that light only machines or tables.

General Electric's 5-year-old secret is in the grooves. They bend a 9-ft. arc stream through an 8-ft. tube and swing it closer to the light-producing phosphor coating. No other fluorescent lamp compares with the Power Groove. Call your General Electric Lamp distributor when you need lamps. General Electric Co., Large Lamp Dept. C-14, Nela Park, Cleveland 12, O.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

For More Facts About Ad
on Following Page Write in No. 175→
33



**You get
peak performance
only
with quality tools**

When only the best cutting tools are good enough, always specify CLEVELAND *Quality* Tools. They are the *finest* you can buy . . . and also the *most economical*.

Our intensive program of quality control starts with the raw materials from which the tools are made. Not only does our Laboratory devote a great deal of attention to specifying and inspecting raw materials, but we also work closely with the suppliers of our high speed steels and carbides to assure that consistently high quality is maintained.

Thus we make doubly sure that every shipment meets our exacting requirements before it is accepted and placed in stock, as shown in the photograph. This establishes a firm foundation for the subsequent heat treating, milling, grinding and other operations through which the steel must pass before the ♦ trademark is placed on the finished tools.

Telephone your Industrial Supply Distributor. He can give you prompt delivery of CLEVELAND Quality Tools from stock, and can make arrangements for one of our trained Service Representatives to help you solve your cutting tool problems.

THE CLEVELAND TWIST DRILL CO.
Cleveland 1, Ohio

QUALITY



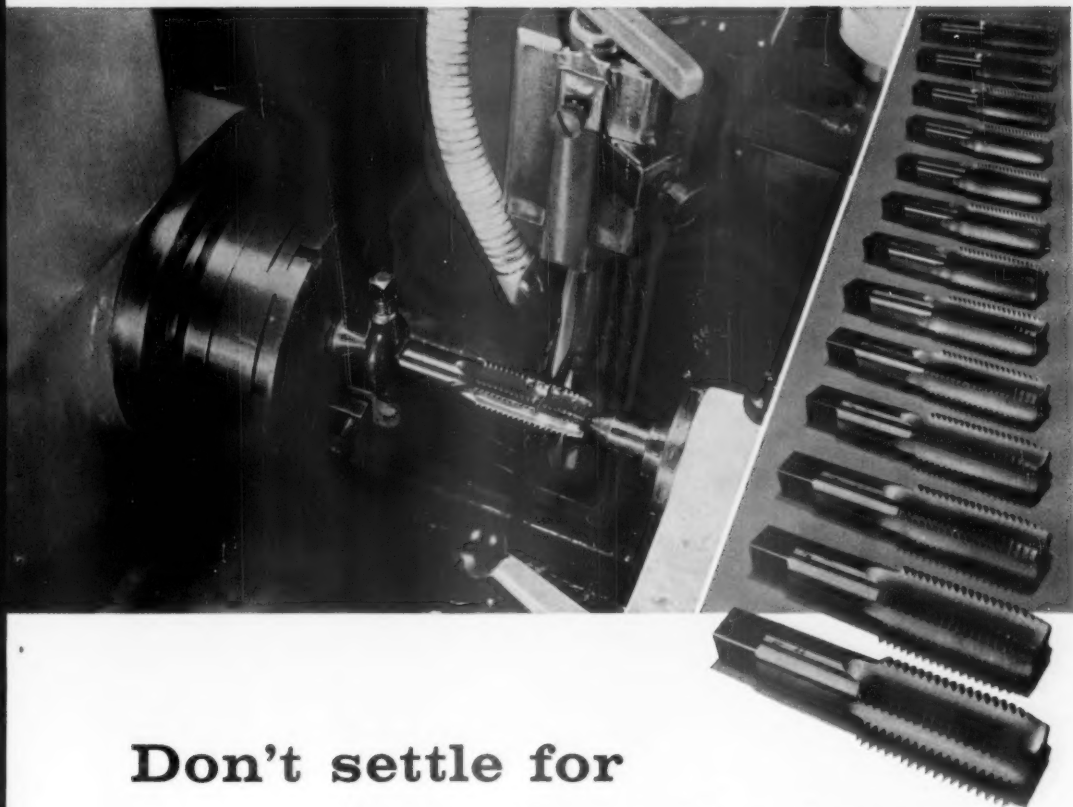
CUTTING TOOLS

•

BEST SERVICE



THROUGH YOUR LOCAL DISTRIBUTOR



Don't settle for less than the best

BAY STATE Taps and Dies are the highest quality . . . consistently.

This assurance of quality is the result of carefully controlling every step in manufacturing. From precise selection of the best steel, through every operation and many inspections, no effort is spared to produce *the best*.

One of the operations is precision thread grinding, illustrated above. Here, as elsewhere in the complex process of making threading tools, *quality* is built into BAY STATE Taps and Dies by skilled craftsmen and modern equipment.

That's why BAY STATE Taps and Dies give you better performance. Don't settle for anything less than the best!

Sold through Industrial Supply Distributors, BAY STATE *Quality* Taps and Dies are always available when you need them—and at lower cost than would be possible with any other method of distribution.

BAY STATE TAP and DIE CO.

Mansfield, Mass.

Subsidiary of The Cleveland Twist Drill Co.



QUALITY

CUTTING TOOLS

BEST SERVICE



THROUGH YOUR LOCAL DISTRIBUTOR



These are the hands of a worker
scrubbed clean, then dried with a Fort Howard towel.
Fort Howard is a major supplier to industrial washrooms
where satisfaction is a necessity, cost a consideration.

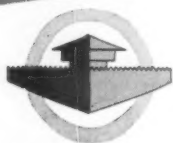


Buy Dry Hands — At A Modest Cost



Wet your hands. Then dry them with a Fort Howard towel.
Notice the fast, pleasant drying power—and the low cost.

Because you have a wide choice of grades, folds, packs,
and prices in Fort Howard towels, you buy the most
efficient and economical towel for your particular needs.
For more information, consult your Fort Howard distributor.



AMERICA'S MOST USED PAPER PRODUCTS AWAY FROM HOME

Fort Howard Paper Company

©Fort Howard Paper Company
For More Facts About Ad
←on Preceding Page Write in No. 176

Green Bay, Wisconsin • Sales Offices in New York, Chicago, Los Angeles

For More Facts Write No. 177 on Information Card—Page 32

Now available from your P-K® distributor... PARKER-KALON SOCKET SCREWS

the most complete line in the industry

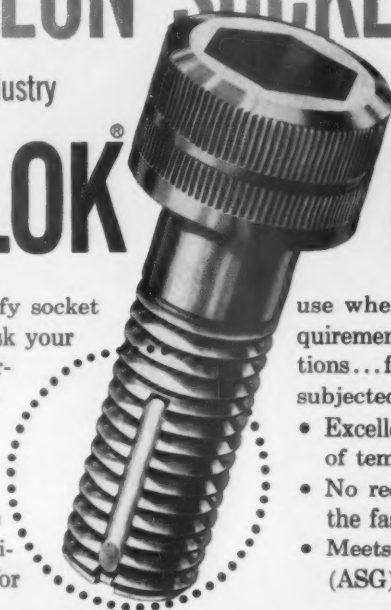
WITH LONG-LOK® INSERTS!

When design and production specify socket screws with self-locking inserts...ask your distributor to show you the Parker-Kalon line with the new Long-Lok feature.

P-K socket screws with Long-Lok inserts of Polycap, a nylon type polymer, completely eliminate the need for lock washers or intricate safety wiring. They are ideal for

use where frequent adjustment is a requirement...for thread-sealing applications...for extra holding power, even when subjected to severe vibration.

- Excellent performance over a wide range of temperature.
- No reduction in basic rated strength of the fastener.
- Meets requirements of MIL F 18240A (ASG) and NAS 1081 specifications.

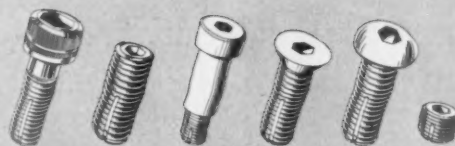


to fill all your requirements...



call on your Parker-Kalon distributor for P-K socket screws with or without the Long-Lok insert. You can order either way and get speedy delivery of P-K quality-controlled socket head cap screws (1960 and 1936 series), set screws (including P-K's new W-Point*), shoulder screws, flat heads, button heads and pipe plugs.

ASK YOUR P-K DISTRIBUTOR FOR SAMPLES AND TECHNICAL BULLETIN NO. 862



LOOK TO P-K for all your socket screw, dowel pin and hex key requirements. Ask your distributor to show you the five new Hex Key sets, now available from P-K in addition to the popular #45 and #111 sets.



*T.M.

U.S. Patent No. 2,907,245

PARKER-KALON® *the complete line*

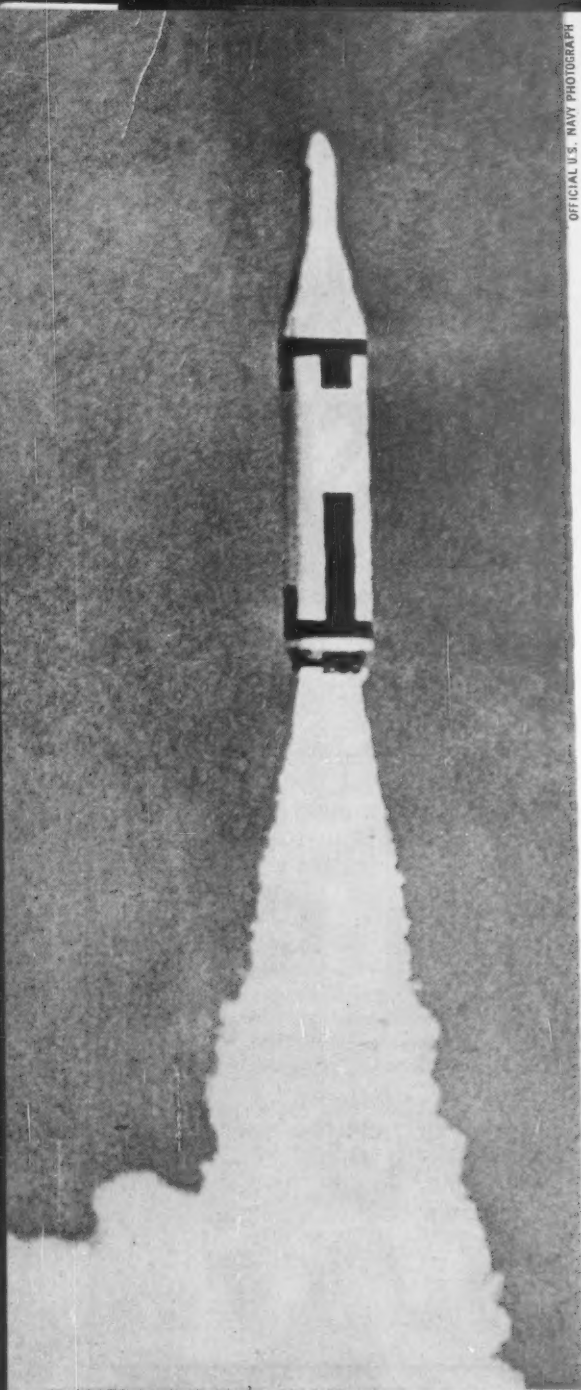
PARKER-KALON, a division of GENERAL AMERICAN TRANSPORTATION CORPORATION, Clifton, N.J., sold exclusively through Industrial Distributors.

For More Facts Write No. 178 on Information Card—Page 32

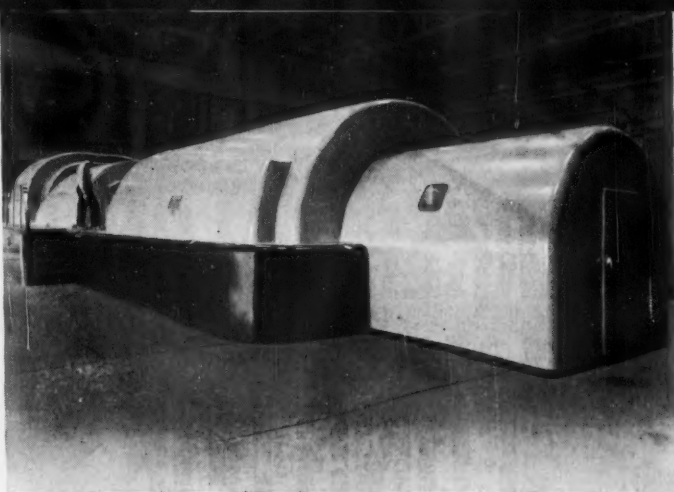
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MARCH 13, 1961

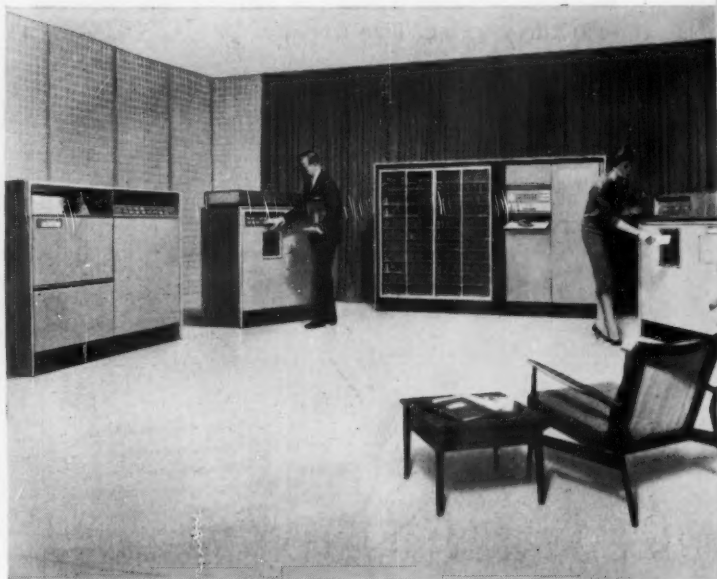
37



Three quarters of the globe serves as launching pad for this Polaris missile designed for subs. Carpenter Stainless forgings assure predictable performance.



Less heat, more power. Hydrogen gas cooling system on this fully super-charged steam turbine demands thin-walled rectangular stainless tubing. For extra strength and uniformity Carpenter Stainless Type 304 was specified.



The "big brain". Carpenter Electronic Alloys provide vital links in these advanced solid-state computing systems. Example: Carpenter HyMu "80" strip is used for pickup heads to help guarantee the necessary high reliability.



you can do it consistently better with

The Carpenter Steel Company, Main Office and Mills, Reading, Pa.



High flying hybrid. "Bucket" is half fan blade, half turbine bucket. Made from Carpenter High Temperature Alloy V-57; "buckets" are used in new jet engines for the world's fastest airliner. Here Carpenter quality provides extra measure of safety.



\$50,000 toys. That's the cost of tooling up for one of these scale models. Manufacturer specifies "Carpenter No. 484 Tool Steel—no substitute."



Smiles and miles. Joy to pedal pushers everywhere are these bicycle speedometers. Pointer shafts must be reliable ... are manufactured from Needle Wire from Carpenter's Webb Wire Division.



Coast to coast off-the-shelf specialty steel service is available in wide range of sizes and grades. Over twenty fully-stocked Carpenter SERVICE-CENTERS ... all staffed by trained specialists.

Carpenter Specialty Steels for Specialists

Alloy Tube Division, Union, N. J. / Webb Wire Division, New Brunswick, N. J. / Carpenter Steel of New England, Inc., Bridgeport, Conn.

Information For Your Catalog Files

BEARINGS

Catalog No. 551 illustrates and describes self-aligning and rod end bearings. Includes a series of plastic alloy, insert, self-lubricated bearings available in a variety of plain or rod end types with bore sizes up to 6 inches.

Southwest Products Co.

Write No. 1 on Information Card—Page 32

BORING TOOLS

A 24-page catalog on multi-point precision boring cutters. Shows layouts of 12 different styles and lists 210 sizes. Also includes information on taper, milling machine, and flange adapters.

Valeron Corporation

Write No. 2 on Information Card—Page 32

BURNERS

Bulletin No. H-1 presents eight atmospheric gas-fired burners with maximum firing capacities from 10,000 to 2,750,000 BTUs per hour. The 14-page illustrated catalog provides dimensions, specifications, engineering data, and ordering information. Includes accessories, such as gap-type burner nozzles, mounting cages, and a draft-compensating pilot.

Eclipse Fuel Engineering Co.

Write No. 3 on Information Card—Page 32

CARBIDE TIPPED SAWS

A handbook on carbide tipped saws and tools. The catalog lists standard blades, including the rip, cross-cut, thin-rim, and hollow ground. Includes a selector showing what blade to use for every type of material and cutting condition.

Victory Carbide Saw & Tool Co.

Write No. 4 on Information Card—Page 32

CARBIDE TOOLS

Catalog No. 61 describes solid carbide tools by type, series number, and dimensional specifications. Includes speeds, application information, and surface feet charts.

Dexco Corporation

Write No. 5 on Information Card—Page 32

COUPLINGS

Bulletin 4100 presents a line of torsionally resilient couplings. The 32-page catalog includes charts, tables, and engineering data. Explains and illustrates how the grid-groove design protects connected machines against shock, vibration, and misalignment.

Falk Corporation

Write No. 6 on Information Card—Page 32

FORK TRUCKS

Bulletin No. SS-2045 gives complete specifications of large general-purpose fork trucks. Covers two types, with capacities of 60,000-lbs and 70,000-lbs designed for heavy lifting work. The eight-page catalog gives details on speed, electrical systems, brakes, and general maintenance. Dimensions are also shown.

Clark Equipment Company

Write No. 7 on Information Card—Page 32

HEAT EXCHANGERS

Bulletin 302.1K1 describes two standard heat exchanger lines. The 12-page, two-color, illustrated catalog discusses applications and engineering features. Includes design and dimensional data.

American-Standard

Write No. 8 on Information Card—Page 32

HOSE FITTINGS

An eight-page catalog on hose fittings and assemblies. Color coding makes it easy to order variations in end fittings. Includes illustrated specification tables of single wire braid hose and fittings.

Lenz Company

Write No. 9 on Information Card—Page 32

LIGHTING FIXTURES

Brochure B-1 presents technical data and general information on recessed fluorescent lighting fixtures. The 40-page booklet is illustrated with photographs and drawings. Includes construction features, specifications, accessories, and ordering information.

Globe Illuminating Company

Write No. 10 on Information Card—Page 32

MERCURY LAMPS

Booklet A-7264 describes mercury lamps. The 28-page bulletin contains information on initial and maintained lumen output, life ratings, and essential electrical and physical characteristics. Also covers construction, ASA designations, color, auxiliary equipment, and application information.

Westinghouse Electric Corporation

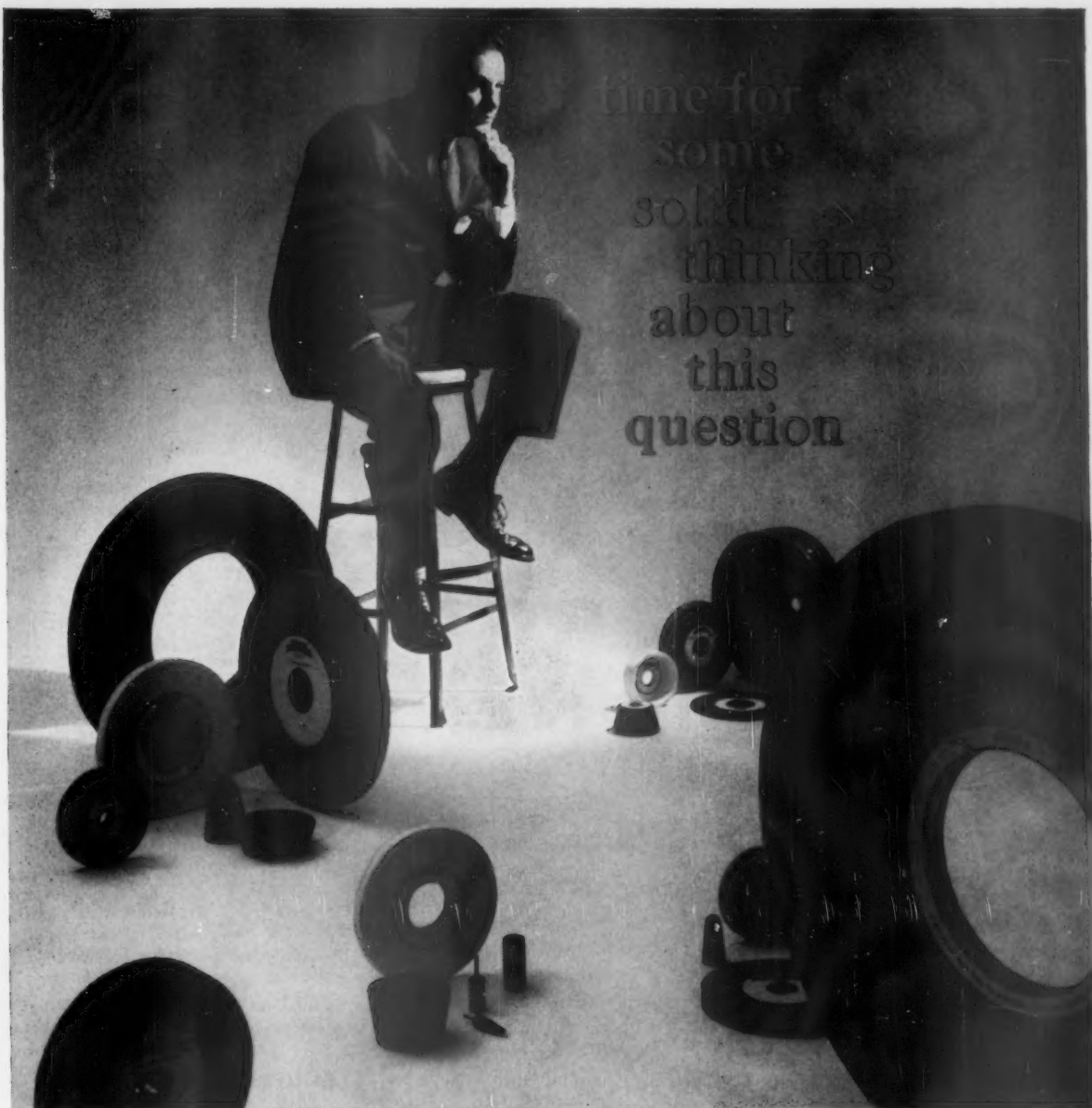
Write No. 11 on Information Card—Page 32

MOTORS

Bulletin GEA-6927B lists features and advantages of motors for limited space applications. The eight-page publication shows a full line of motors rated one through five horsepower, in both drip-proof and enclosed construction.

General Electric Company

Write No. 12 on Information Card—Page 32



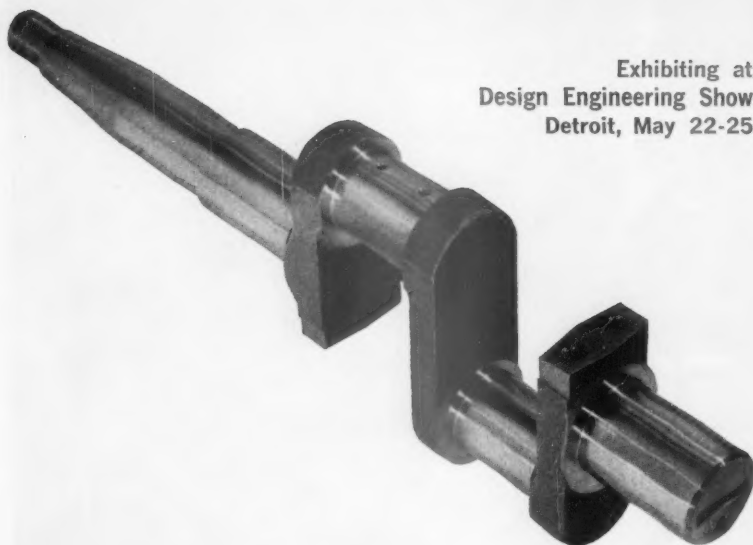
Are you getting the most profitable ratio between grinding costs and production? The key is efficient grinding wheel performance . . . and with Simonds Wheels you get it. Complete line has grinding wheels of every grain and grade combination . . . expertly-engineered products, thoroughly tested, readily available . . . and, in specifications now proving their cost-saving efficiency. New illustrated catalog provides complete information. Write for copy on your letterhead.



Your "buy-law" for better grinding
CALL YOUR SIMONDS DISTRIBUTOR
helping YOUR business is HIS business

WEST COAST PLANT: EL MONTE, CALIF. — BRANCHES: CHICAGO • DETROIT • LOS ANGELES • PHILADELPHIA • PORTLAND, ORE. • SAN FRANCISCO
 SHREVEPORT — IN CANADA: GRINDING WHEELS DIVISION, SIMONDS CANADA SAW CO., LTD., BROCKVILLE, ONTARIO • ABRASIVE PLANT, ARIYIDA, QUEBEC

For More Facts Write No. 180 on Information Card—Page 32



Exhibiting at
Design Engineering Show
Detroit, May 22-25

DUCTILE IRON SAVED MONEY

This seventy pound ductile iron crankshaft was made for air compressors manufactured by The Brunner Division of Dunham-Bush, Inc. The increased loads and impact resistance called for by new compressor design specifications required rigidity and strength beyond the limits of the cast iron alloy shafts formerly used. Ductile iron was chosen because the rigidity, yield strength and wear characteristics comfortably exceed operating requirements.

A major cost advantage was realized in this case. Hamilton Foundry used existing pattern equipment made for the gray iron crankshafts in the switch to ductile iron. This saved the cost of new foundry patterns and the greater cost of dies needed for steel forgings. Dunham-Bush achieved a major improvement in product performance for the modest additional cost of the metal in the castings.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD



HAMILTON FOUNDRY INC.

1551 LINCOLN AVENUE • HAMILTON, OHIO • TWInbrook 5-7491
For More Facts Write No. 181 on Information Card—Page 32

Catalog Files

POSITIONERS

Bulletin 500A shows how positioners can be used to automatically position many types of mechanical regulating devices. This 10-page, multi-colored catalog contains illustrations, line drawings, and charts.

Hanna Engineering Works

Write No. 13 on Information Card—Page 32

PUMPS

Bulletin S-7253 covers impervious graphite type F centrifugal pumps. Describes four basic sizes providing capacities up to 140 gpm and heads up to 67 feet. Also contains a cut-away drawing, characteristic curves, and a dimension sketch and table.

Union Carbide Corporation

Write No. 14 on Information Card—Page 32

RIVETS

Bulletin TCL-160 covers commercial rivets for blind or open applications. The 12-page booklet contains specifications for rivets in plugged and hollow types, available in aluminum, mild steel, and monel. Includes a series of charts, drawings, and photographs.

Townsend Company

Write No. 15 on Information Card—Page 32

STRAINERS

Catalog 6008 describes strainers for steam, air, gas, and liquids. The 12-page bulletin details 600 standard types and shows the selection of body materials, end connections, pressure ratings, and sizes. Pressure drop and pressure-temperature limit data is provided.

Leslie Co.

Write No. 16 on Information Card—Page 32

SWITCHES

A 48-page catalog on selecting and ordering switches. Describes applications, materials, and characteristics. Illustrates both standard and special types.

General Mills, Inc.

Write No. 17 on Information Card—Page 32

For More Facts About Ad
on Facing Page Write in No. 182→

Application tested! Proved!

WHY HEAT TREAT PARTS? use **e.t.d. 150**

elevated temperature drawing (150,000 psi tensile)

ALLOY STEEL BARS

e.t.d. 150 Alloy needs no heat treating!

**e.t.d. 150 Alloy has 150,000 psi tensile guaranteed!
(Rockwell C32 minimum)**

**e.t.d. 150 Alloy machines better than heat treated
alloy steels!**



Here are cost-reducing advantages

(1) Heat treating problems, costs (and secondary operations) are eliminated. (2) "e.t.d." 150 machines better than heat treated in-the-bar alloy steels. (3) Tool life and finish are excellent. (4) No quench cracks or distortion from heat treatment. (5) "e.t.d." 150 has exceptional strength and hardness uniformity across the bar. (6) End cost of parts is greatly reduced.

Use this coupon to request Helpful Data Bulletin 22.

***La Salle* STEEL CO.**

1432 150th St. Hammond, Ind.

Manufacturers of
STRESSPROOF®, FATIGUE-PROOF®,
and a complete line of
cold-finished steel bars.

Name _____

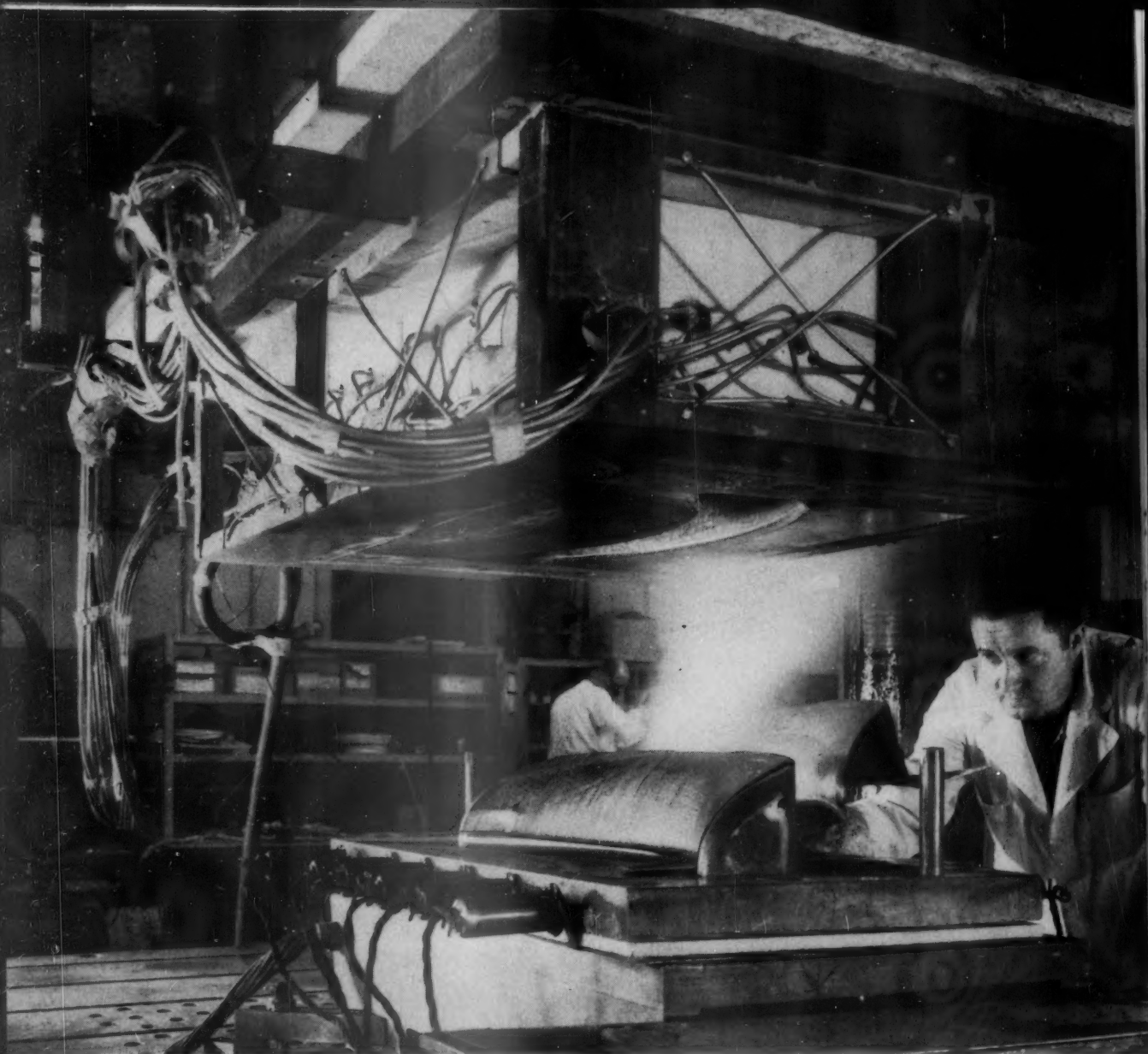
Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Available from your Steel Service Center



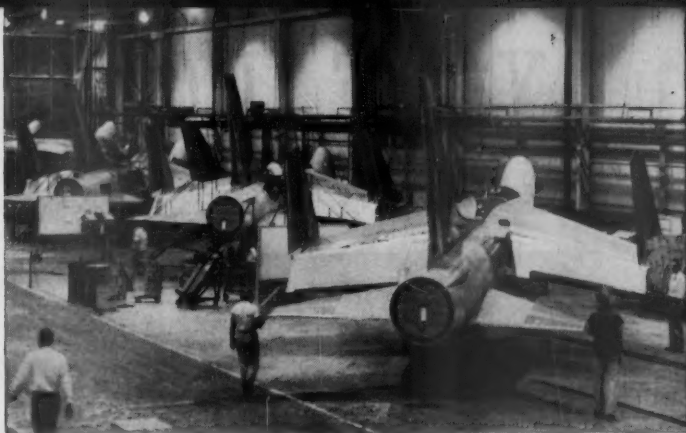
Gulf Harmony[®] oil has the extra stability press operation at Chance Vought...

Chance Vought Corporation, Dallas, Texas, developed a unique production technique to speed production of jet fighters. It's a 1000-ton press with electrically heated dies that permits the forming and stress-relieving of a titanium part in one operation.

However, this advanced technique created several problems. One, according to Doy Stanley, General Foreman, Facilities, was the heavier burden placed on operating parts of the press. When forming and stress-relieving were combined in one operation, high

temperatures and pressures had to be applied for long periods of time. Under these conditions, maintenance of the press is very important. According to Mr. Stanley, "We've always stressed efficiency in our operation. And downtime is, as you might say, doubly inefficient."

Proper lubrication of hydraulic mechanisms and other press parts subjected to elevated temperatures and pressures is a must to keep production right on schedule. Says Mr. Stanley: "We have never had any



F8U Navy fighters near the end of the assembly line. Aircraft's leading edges use titanium part that has been formed and stress-relieved in one operation.



Doy Stanley, left, discusses hydraulic oil applications with Grover Garrison, Gulf Sales Engineer. Hamilton Press shown in background is one of various presses at Chance Vought that use Gulf Harmony oil.

On this 1000-ton press, simultaneous forming and stress relieving of titanium takes place at 1000 deg. F. Quality Gulf Harmony oil protects the vital hydraulic system.

needed for high temperature GULF MAKES THINGS RUN BETTER!

downtime, or any trouble at all that can be attributed to lubrication. This excellent record is due mainly to the fact we use a high quality hydraulic oil that won't break down under heat."

That "high quality hydraulic oil" Mr. Stanley refers to is Gulf Harmony. It not only withstands heat, but resists oxidation, which improves service life and prevents sludge formation. Also, a corrosion inhibitor guards against rust, and an anti-foaming additive assures a smooth transfer of power.

If you have problems involving hydraulic fluids, or any petroleum product application, may we have the opportunity to prove to you that Gulf makes things run better! Call your nearest Gulf office, or write us for additional information.

GULF OIL CORPORATION
Dept. DM, Gulf Building
Houston 2, Texas



EXIDE POWER PACKAGE

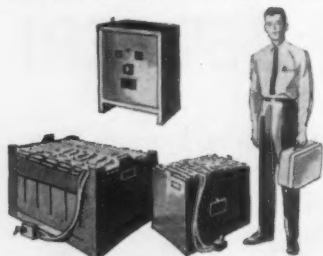
Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa. 



HOW MUCH EXTRA BATTERY LIFE CAN YOU GET?

You may be getting good battery life now. But the fact is that almost every battery can give better life if certain rather simple conditions are met.

Helping you to get maximum life, and therefore greatest economy, from your batteries is part of the Exide Power Package. The first step is selecting the particular type and capacity battery to fit the job. Your Exide man will recommend a battery capable of providing adequate power without the need for deep discharging. Knowing how to do this accurately is part of his special skill.



The Exide Power Package: Broadest choice of all types of batteries and chargers to meet all requirements, plus factory-quality service for both batteries and chargers.

To meet your particular requirements, he can draw from the broadest line of batteries for industrial truck power, including Exide-Ironclad with tubular positive plate construction; Exide-Powerclad premium pasted plate; and the improved Exide nickel-iron-alkaline (invented by Thomas A. Edison).

Second, it is important that the charger be able to recharge the battery completely within the allotted time, and at the desired rate. If a battery isn't adequately charged, it loses efficiency and its power output is reduced. At the same time, you must guard against overcharging too. Play safe. Ask your Exide man to recommend the right size and type Exide charger when you buy your Exide battery.

Third, make sure your batteries receive good upkeep. This involves more than just routine cleaning and watering. It means periodic inspection and checking by battery maintenance engineers. Exide offers this service at a reasonable fee. Exide service men will help you set up good battery maintenance schedules. They will diagnose problems which might develop—show you whether the cause is in the truck, the charger, the

application, or the maintenance. And they will take care of any repairs or adjustments to batteries or chargers which might be called for. You get complete battery and charger service from one source, fast, thorough, dependable.

The combined effects of these three basic parts of the Exide Power Package mean not only longer battery life, but greater battery economy year after year. Find out exactly how you can benefit. Write Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Simplified electricity bulletin. Do you want to know how storage batteries work and what goes on as they charge and discharge? Send for this detailed bulletin. It's yours free. Also contains tips on how to keep batteries in top operating condition.

Exide®

For More Facts Write No. 184 on Information Card—Page 32

For More Facts About Ad
on Facing Page Write in No. 185→
PURCHASING

CAREFUL!

Care in the creation of Continental Broaches takes precision manufacturing a step beyond the exactness of quality control. Thirty years of broachmaking—designing and producing thousands of standard and custom-made broaches—assures unmatched efficiency and performance from CTW Broaches.

Find out how Continental's experience in broach engineering, modern heat treat methods and cost-saving production processes can cut downtime and increase output in your operation. Call your local Ex-Cell-O representative, or contact Ex-Cell-O Detroit; in Canada, Colonial Tool Co., Ltd., Windsor.

59-14

Continental **CTW**
TOOL WORKS

DIVISION OF

EX-CELL-O
CORPORATION
DETROIT 32, MICHIGAN

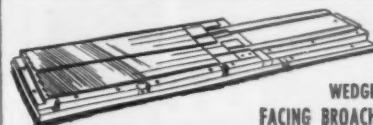
With the sure, careful touch of an experienced hand, veteran CTW heat-treat man hoists 72" broach from a vertical furnace.



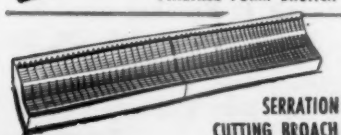
PINETREE FORM BROACH



SPIRAL
SPLINE BROACH



WEDGE
FACING BROACH



SERRATION
CUTTING BROACH



INVOLUTE SPLINE
SHELL-TYPE BROACH



CARBIDE-TIPPED BROACH SECTIONS

MADE FOR LIGHTNING FAST APPLICATION

STOCKED FOR SUDDEN SERVICE



Southern Screws are USA-made with USA-made materials, by fastener specialists who know that burr-free heads and sharp threads mean faster, more profitable assembly.

If you have a fastening assignment on which you would like to save time, money and labor, contact your Southern Screw distributor for fast service. Or write direct to: Southern Screw Company, P.O. Box 1360, Statesville, North Carolina.

Manufacturing and Mails Stock in
Statesville, North Carolina

Warehouses:
New York • Chicago • Dallas • Los Angeles

A, B, C, & F Tapping Screws • Machine Screws
& Nuts • Stove Bolts • Drive Screws • Continuous Threaded Studs • Carriage Bolts • Hanger Bolts • Dowel Screws • Wood Screws



For More Facts Write No. 186
on Information Card—Page 32

Letters To The Editor

SLEEVES AND SALES UP

Dear Sir:

Your January 16 "Letters To The Editor" column contained a dissertation by Miles B. Hopkins of Pemco Corporation, in which he takes umbrage at pictures of shirt-sleeved purchasing agents appearing in **PURCHASING** Magazine.

Here, at Channel Master Corp., our mode of attire hasn't changed since the illustrated article "The Personal Touch in Purchasing", describing our purchasing department, appeared in your July 21, 1958 issue. All employees of our firm—executives, office workers, plant personnel—work in their shirt sleeves, without ties, and collars unbuttoned.

Of course, we have had other changes since our appearance in your magazine. Our sales volume has almost tripled . . . last year we grossed close to \$40 million dollars . . . in our shirt sleeves, without ties, and collars unbuttoned.

Unfortunately or otherwise, we do not spend too much time, nor are we paid for, worrying about the style and dress of others. Instead, we concentrate only upon the successful administration and operation of our organization, and make sure that everyone we work with and do business with, is as comfortable and as satisfied as we are.

Jerome Z. Elkin
Channel Master Corp.
Ellenville, New York

A MODEST PROPOSAL

Dear Sir:

The fleet owner does not find on the automobile market a car to meet his requirements. The fleet owner wants a car that is reliable, comfortable and economical. He is not interested in the higher cost of purchase and the greater maintenance cost of the present-day elaborate bodies, excessive trim and non-functional bumpers that

have become ornamental grills rather than being protective of the body.

Even dual head and tail lights cost more to buy and to maintain. Minor bumping accidents become financially serious in the current bodies. The cars are difficult of access, being too low and unnecessarily wide, involving additional hazards in parking. The rear overhang is, too great, making the car unnecessarily long, causing a further parking problem.

It is time for the National Association of Purchasing Agents to form a committee to agree on the specifications of a car that will be generally acceptable to fleet owners. There will be a large market for the automobile manufacturer who produces it, for such a car should also be popular with "drive-yourself" companies, small taxi firms, and a host of private owners who are disgusted with the present models.

So in the interest of greater economy of operating fleet cars, I urge that such a committee be formed to tell the manufacturers what is wanted by the fleet owner as well as a host of other purchasers. I would be glad to give my considered conclusions to such a committee on a proper specification of such a car.

Irving Warner
Warner Company
Philadelphia, Penna.

PURCHASING LIBRARY

Dear Sir:

I would like to congratulate Conover-Mast Publications and you on consistently providing the members of the purchasing profession with a very interesting and valuable magazine.

We have established a library of past issues for the use of the buyers and myself, and, believe me, it has been a valuable reference.

R. B. Kenehan
Franklin Electric Co., Inc.
Bluffton, Indiana

OVER 1500 ITEMS
for Business, Industry
and Institutions

FOR EXAMPLE:



**THIS CATALOG ILLUSTRATES
THE WORLD'S MOST
DIVERSIFIED LINE
OF STEEL EQUIPMENT
IT'S FREE!**

**5 to 1
in '55**

AND NOW IT'S

**7
TO
1**

In a preference survey made by an independent organization back in 1955, key men in companies throughout the country gave Lyon 5 times more first choice votes than any other steel equipment manufacturer.

In a comparable survey made in 1960, Lyon's first choice margin jumped to 7 to 1! And Lyon received more exclusive mentions than the next 22 companies combined!

Your nearest Lyon Dealer offers the world's most diversified and *most preferred* line of steel equipment—quality protected to give you the most for your investment.

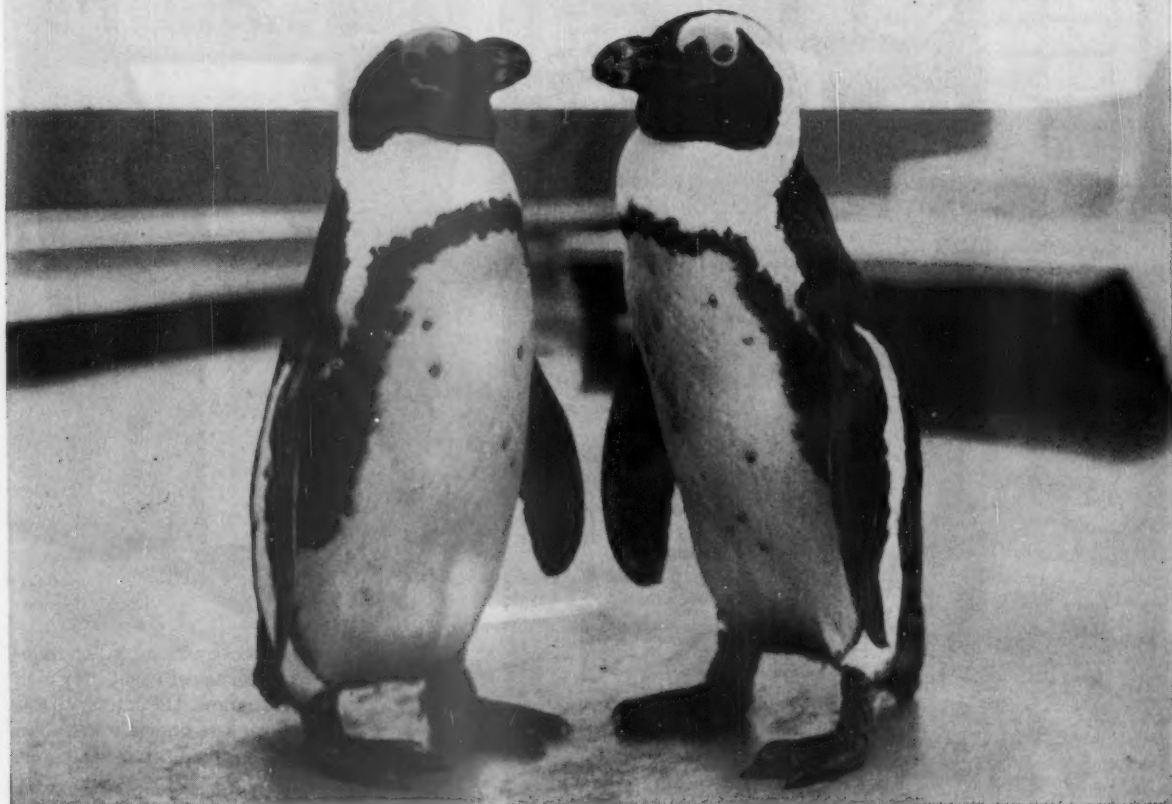
LYON METAL PRODUCTS, INC.

General Offices: 333 Monroe Ave., Aurora, Illinois
Factories in Aurora, Ill.—York, Pa.—Los Angeles
Dealers and Branches in All Principal Cities

**LYON[®]
METAL PRODUCTS**

**"Who makes the most
uniform magnetic cores?"**

**"Magnetic Metals,
of course!"**



When you're faced with an order for magnetic cores with closely matched characteristics, tape-wound Centricores® will fill the bill exactly. They're the most consistently uniform cores available anywhere.

Centricore uniformity begins with the careful screening of raw materials for the exact magnetic properties you need, is maintained in winding through use of special machines of our own design, and completed with annealing under rigidly controlled conditions. The rugged design of the leak-

proof Centricore cases permits use of a thinner gage aluminum that shaves fractions of an inch off their size—fractions that can add up to precious inches when you want to scale down component dimensions. *Centricores are the slimmest magnetic cores on the market.*

With Centricores—and all Magnetic Metals products—comes expert, interested help with any specification problems you may have. And you can depend on prompt delivery from either our East or West Coast plants. Write or call today.

**MAGNETIC
METALS**



MAGNETIC METALS COMPANY

Hayes Avenue at 21st Street, Camden 1, N.J.

853 Production Place, Newport Beach, California

*transformer laminations • motor laminations • tape-wound cores
powdered molybdenum permalloy cores • electromagnetic shields*



For More Facts Write No. 188 on Information Card—Page 32



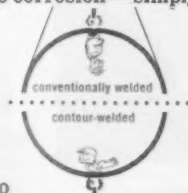
"The Gravity Kid" shows how

CONTOUR-WELDED STAINLESS TUBING DEFIES CORROSIVE ATTACKS

It's smoother inside than any other tubing—welded or seamless—because the patented* Contour-welding process virtually eliminates the weld bead. And this smoother surface ensures greater resistance to corrosion—simply because there are fewer focal points for corrosive attack.

You see, in conventionally welded tubing, gravity pulls the molten metal down into the tubing. This forms a bead that is difficult to remove by cold working. And cold working can lead to undercuts that become focal areas for corrosive attack.

Contour-welded tubing, however, is welded at the bot-



tom. Gravity still pulls the molten metal down. But now the weld area corresponds to the contour of the tube. There's virtually no weld bulge on the inside surface. And even on the O.D., the weld seam closely conforms to the tubing contour.

Contour-welded tubing is smoother, too, than seamless. That's because it's formed from uniformly rolled strip steel, whereas seamless is extruded or pierced.

But get full details on this corrosion-resistant tubing. Send for our free 48-page manual on Contour-welded tubing in sizes from 1/8" to 40" O.D.—in stainless and high alloy steels, titanium, zirconium, zircalloy and Hastelloy.*

*Trademark Haynes Stellite Co.

TRENTWELD® Stainless and High Alloy Tubing

Trent Tube Company, a Subsidiary of Crucible Steel Company of America. General Offices and Mills: East Troy, Wisc.; Fullerton, Calif.

For More Facts Write No. 189 on Information Card—Page 32

MARCH 13, 1961

51

Purchasing People In The News

Rodney A. Fletcher has been promoted to the newly created position of administrative manager in purchasing for the **A. E. Staley Manufacturing Co., Decatur, Ill.** Mr. Fletcher joined Staley's in 1957 as a cost ac-



Rodney A. Fletcher

countant, became auditor in June 1959, and chief auditor in December, 1959. He is a graduate of the University of Illinois with a BS degree in accounting and marketing.

The following purchasing changes have taken place at **The Pure Oil Company, Palatine, Ill.** **John H. Harmon, Jr.** has been made director of purchases and **Don J. Wangelin** general purchasing agent.

Mr. Harmon joined the company in 1934 as a clerk in the purchasing department. Subsequently, he worked as a student and junior engineer at the old Northfield, Ill., research and development laboratories and as an industrial oil salesman in Minneapolis and Cincinnati. In 1940 he returned to the purchasing department. He was appointed buyer in 1942, assistant general purchasing agent in 1947, and general purchasing agent in 1954. He is a graduate of Princeton.

Mr. Wangelin joined Pure in 1939 as a junior engineer at the

Northfield laboratories. In 1950 he was named plant engineer, and in 1958 he became division director in charge of operation and maintenance of the company's research center at Crystal Lake, Ill. In 1959, he was named assistant project engineer for the general office building, later he became building manager. Mr. Wangelin graduated in mechanical engineering from the University of Michigan.

Clayton Mark & Company, Evanston, Ill. has named **Carl V. Schroeder** director of purchasing. Mr. Schroeder joined the company last year as purchasing agent. Previously, he had been director of purchasing of brass products for American Standard Company since 1953. Before that he was with the Crosley Division of Avco Corporation.

Harry Johnson has been elected vice-president, purchasing for **Continental Electric Equipment Co., Cincinnati, Ohio.** Mr. Johnson has been associated with the firm for ten years in the positions of



Harry Johnson

works manager and assistant to the president. Prior to that, he was an assistant buyer for Procter and Gamble. He attended the University of Cincinnati.

Colgate - Palmolive Company, New York, N. Y., has elected **John M. Halsted** to the post of vice president for purchasing. Mr. Halsted succeeds **John H. Blakney** who has retired after 47 years of service with the company. Mr. Halsted joined Colgate-Palmolive's purchasing department in 1928. In 1943, he was named assistant to the director of purchases, with supervisory responsibility for the purchasing of fats and oils, chemicals and other raw



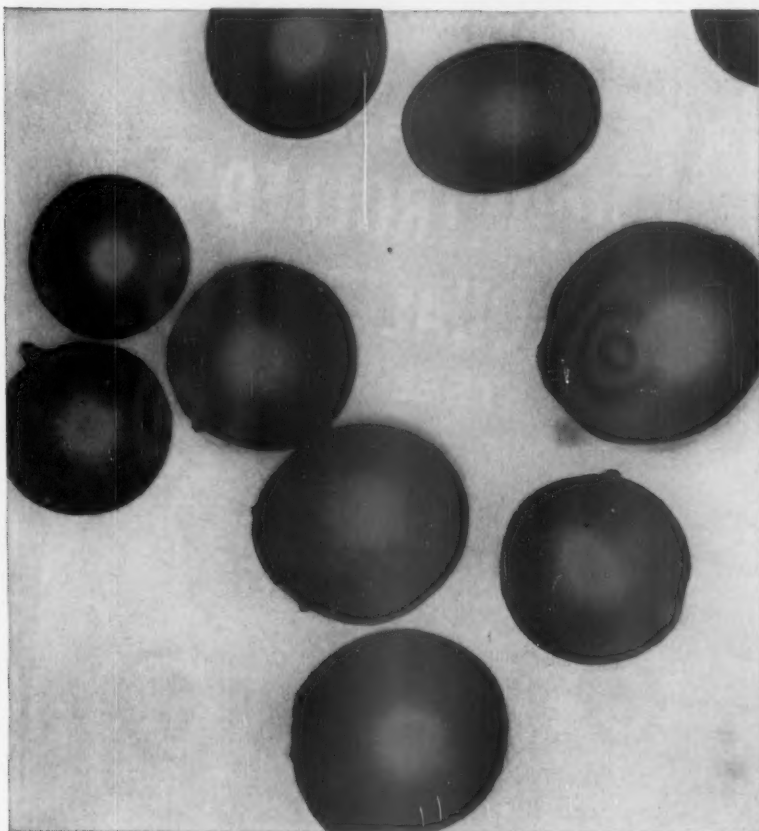
John M. Halstead

materials. Early in 1958, he became director of purchases within the corporate purchasing department and, in this capacity, coordinated the purchasing activities of the operating divisions.

Two promotions, one involving a transfer, have been announced by the **Carling Brewing Company's Natick, Mass.**, regional plant. **Philip F. Bamforth** has been named materials control assistant on the staff of the vice president for production at the company's home office in Cleveland, Ohio. **Robert J. Saunders** has been named to succeed Mr. Bamforth as purchasing agent at Natick.

**SEE PAGE 190 FOR MORE
PURCHASING PEOPLE IN
THE NEWS**

30 MILLION OF THESE JET-FORMED SPHERES IN EVERY INCH OF BEARING SURFACE!



JET PROCESS BLASTS MOLTEN ALLOY INTO UNIFORM PARTICLES . . .

so small that thirty million will form a thin layer only one inch square! This sintered layer is the bearing surface of Federal-Mogul sleeve bearings.

Molten copper-lead, alloyed to exact specifications, is poured into a special inert-atmosphere reaction crucible. Here it's blasted by a high-speed fluid jet to form the dense powder shown at left.

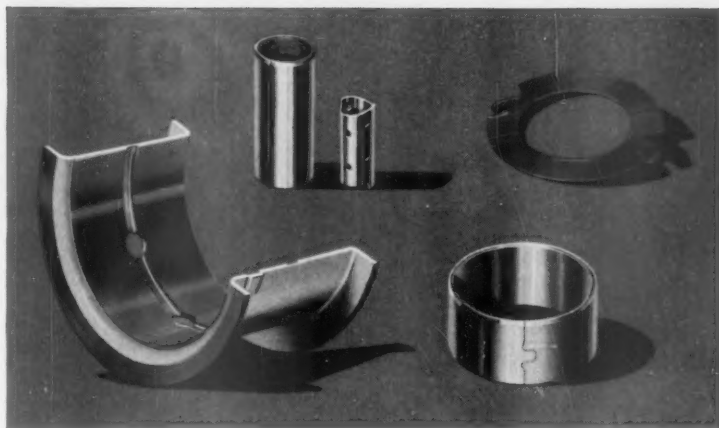
Because of the uniform particle size of this powder, the bearing surface of each F-M copper-lead sleeve bearing has precisely the same alloy composition and high adhesion to the steel backing as every other F-M bearing of the same alloy type!

YOU CAN SEE THE CONSISTENT SIZE

in the photomicrograph. What you *can't* see is the consistent alloy composition which produces uniform bearing properties and performance in any alloy type.

Federal-Mogul makes engine bearings for every condition of speed and load. You can select from among five different sintered copper-lead alloys, all permanently bonded to precision-formed steel backing. Our Engineering Department is available to you for consultation or recommendations on bearing design and application. For more information, write Federal-

Mogul Division, 11077 Shoemaker, Detroit 13, Michigan.



A COMPLETE LINE! Steel backed bearings with a selection of many different alloys for virtually any bearing application—Plain and bimetal bushings in bronze, steel or aluminum. Precision thrust washers in solid bronze, or sintered alloys on steel (one or both faces). Rolled split spacer tubes in steel, aluminum or stainless.

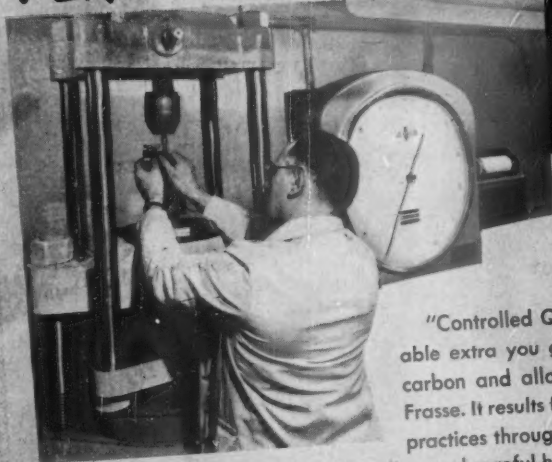
FEDERAL-MOGUL

sleeve bearings
bushings-spacers
thrust washers

DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.

For More Facts Write No. 190 on Information Card—Page 32

**PREDICT
PERFORMANCE with...**



"Controlled Quality" is the valuable extra you get in every bar of carbon and alloy steel shipped by Frasse. It results from rigid inspection practices through every step of production... tight adherence to "specs"... and careful handling, storing and shipping methods to protect straightness and surface finish.

The advantages of Frasse "Controlled Quality" are yours—in uniform results from bar to bar... shipment after shipment. It assures predictable performance from the steel you use... before you use it. You get exactly what you pay for, every time.

Since 1816—when Frasse first began serving steel users, its reputation for product reliability has been unsurpassed. That's why Frasse is a leading source for carbon bars and shafting—as well as commercial and aircraft quality alloy steels.

Frasse stocks an unusually complete range of sizes and grades—quick deliveries are routine. If you insist on top quality—want it fast... make it a point to call Frasse. Thousands of leading firms do... to their complete satisfaction.

Peter A.



& Co., Inc.

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17 Grand St.
Walker 5-2200

PHILADELPHIA 29, PA.
3911 Wissahickon Ave.
Baldwin 9-9900

BUFFALO 5, N. Y.
P.O. Box 102
TR 6-4700

SYRACUSE 1, N. Y.
P.O. Box 1267
HOWARD 3-8655

HARTFORD 1, CONN.
P.O. Box 1949
JACKSON 9-6861

FRASSE

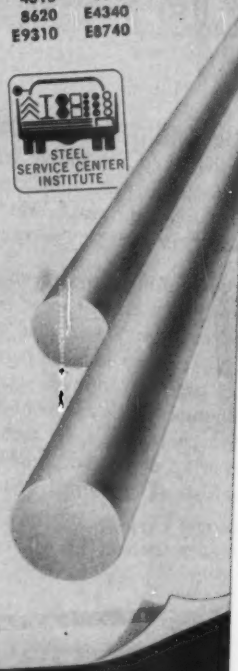
**"CONTROLLED
QUALITY"
STEEL BARS**

*Call
FRASSE 1st*
for

Carbon and Alloy Steels

Frasse Stocks Include:

C1018	C1141	E4130
C1045	C1212	4130 H.T.
B1112	C1213	4140
B1113	Ledloy	4142
B1113X	4615	4142 H.T.
C1117	8620	E4340
C1137	E9310	E8740



NEED PLASTICS?



Dial your nearest



AUTHORIZED PLEXIGLAS DISTRIBUTOR

for complete service on PLEXIGLAS® acrylic plastic sheets—
clear, colored, patterned, corrugated—and other plastic
materials . . . technical and fabrication information . . . prompt
delivery. Your nearest Authorized PLEXIGLAS Distributor
is your best source of service on plastics.

**ROHM
&
HAAS**

PHILADELPHIA, PA.

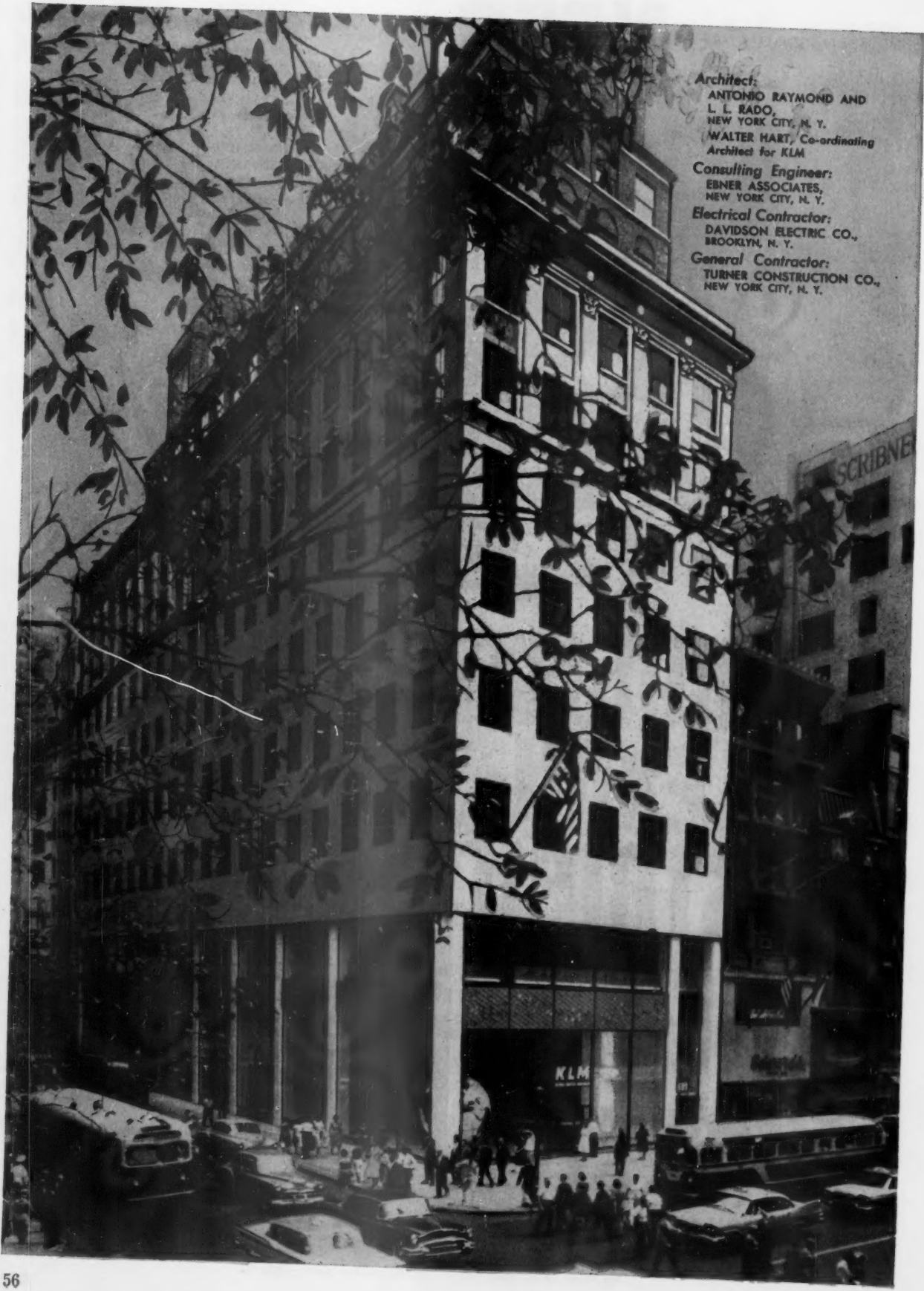


In Canada: Rohm & Haas Co. of Canada, Ltd., West Hill, Ontario

For More Facts Write No. 192 on Information Card—Page 32

Authorized Distributors are listed
under PLEXIGLAS in the Plastics
section of classified directories in
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ALBANY, New York
ATLANTA, Georgia
BALTIMORE, Maryland
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ANTONIO RAYMOND AND
L. L. RADO,
NEW YORK CITY, N. Y.
WALTER HART, Co-ordinating
Architect for KLM

Consulting Engineer:
EBNER ASSOCIATES,
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Electrical Contractor:
DAVIDSON ELECTRIC CO.,
BROOKLYN, N. Y.

General Contractor:
TURNER CONSTRUCTION CO.,
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Electrical Protection is *MODERNIZED* with BUSS fuses in the **KLM Royal Dutch Airlines** **Building, New York City**

KLM INSTALLATION POINTS OUT THE NEED FOR SAFE INTERRUPTION OF HIGH FAULT CURRENTS

A 3 million dollar modernization program was recently completed on this 13 story office building at 609 Fifth Ave., which houses the American Executive and first floor ticket offices of KLM Royal Dutch Airlines.

To meet power requirements, the capacity of the electrical system was greatly increased,

resulting in an estimated available fault current level approaching 100,000 amperes.

In the main switchboard, Buss **LIMITRON** fuses are installed to provide the high interrupting capacity necessitated by the available fault current and to give great current limitation needed to protect circuits and equipment.

To further assure safe protection and to safeguard against needless outages, distribution and feeder circuits are equipped with **FUSETRON** dual-element fuses.



Fuses Offer the Safest, Most Practical Solution to Modern Protection Requirements

As electrical network capacities increase, available fault currents of 75,000 to 100,000 amps and up are no longer uncommon.

In order to adequately safeguard circuits and equipment, it becomes imperative to install protective devices that can safely interrupt these fault currents.

HIGH INTERRUPTING CAPACITY

Fuses provide high interrupting capacity at a very low cost. Buss **LIMITRON** fuses have an interrupting rating of 200,000 amps. rms symmetrical — and for **FUSETRON** dual-element fuses it is 100,000 amps.

CURRENT LIMITATION

Buss **LIMITRON** fuses also provide current limitation so that fault currents are shut-off before equipment on the circuit can be damaged.

LIFE-TIME DEPENDABILITY

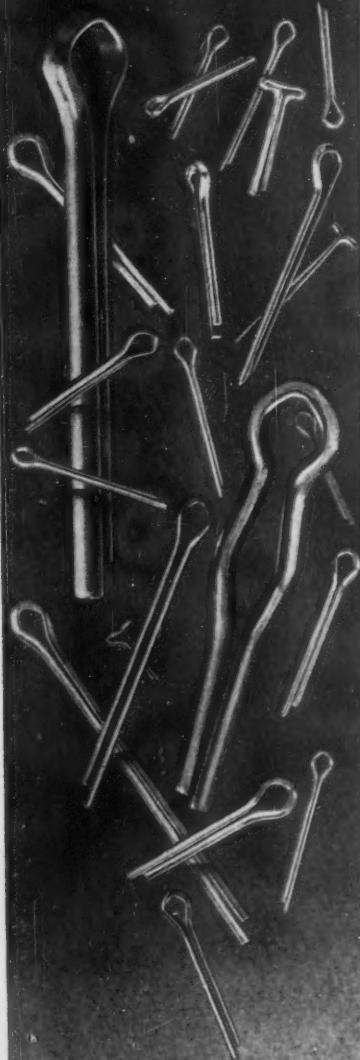
Fuses remain safe and accurate through the years. Fuses have no triggers, latches, pivots or contacts to stick or get out of order. They require no expensive maintenance or recalibration — they are always ready to function the instant trouble occurs.

To help you select the proper fuse, write for the new BUSS booklet . . .
BASIC PROTECTION FOR ELECTRICAL POWER SYSTEMS.

Part of Main Switchboard Protected by:
3-3000 amp., 3-1200 amp., 6-1000 amp.,
BUSS LIMITRON FUSES and
15-400 amp., 3-350 amp., 3-275 amp.,
3-250 amp., 9-200 amp., 3-125 amp.,
3-90 amp.,
FUSETRON dual-element FUSES

BUSSMANN MFG. DIVISION McGraw-Edison Co.
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Hold it ...with Hindley Cotter Pins



Here's the most complete source for precision cotter pins. A complete range of metals including Monel, and unusual styles and sizes. Uniformly made for fast assembly. Write for folder.

Hindley
Since 1897

Hindley Manufacturing Co., Cumberland, R. I.
Wire Hardware • Cotter Pins • Plumbing Specialties

For More Facts Write No. 194
on Information Card—Page 32

FOB—"filosofy of buying"

LEW JONES is dead and the National Association of Purchasing Agents and the purchasing profession have lost one of their finest members.

Lew, who was 80 and director of student placement at the University of Dayton when he passed away, was N.A.P.A.'s president during one of its most critical hours. The national group was just about splitting up under the hammer blows of internal dissension and regional demands for autonomy when Lew, then head of purchasing for New York Power and Light Co., was elected president. His profound devotion to the national idea and his iron determination to keep the association unified gave him the strength to overcome the dissidents. Among the moves he made to strengthen the organization was the hiring of George Renard as national secretary. Lew was also one of the founders of the Public Utility Buyers Group, long one of the most outstanding units in N.A.P.A.

But leadership and administrative skill were not the only qualities that endeared Lew to thousands of people in purchasing. He was a good person in every sense

of the word—honest, gentlemanly, high-principled, and always ready to help the next fellow, particularly the young and inexperienced. May he rest in peace.

MODERN industrial life may be getting quieter, but it's also getting spookier. The latest thing in what's becoming known as "in-plant communications" is a silent personnel paging system being used in GM's Oldsmobile Division. (The system is a product of the company's AC Spark Plug Division.)

The silent pager is a noiseless vibrator-receiver device, called the VibACall, which is worn on the belt of key supervisory people. When the supervisor is being paged, the receiver, which is only slightly larger than a pack of cigarettes, gently vibrates. That means an electronic signal is getting through from a centrally-located transmitter unit.

Maybe this is progress for some. Yet it's hard to think of a plant without the old familiar flat voice of an operator calling out over the P.A. system, "Hai-r-ry Faw-rester,



"The only trouble with those brain-storming sessions is that I can't think of anything."

call your office!" We mourned the day the old steam locomotive whistle went out, now we're faced with this. The next time we're on a plant visit, our guide may be in the middle of showing us a fascinating shop operation. Suddenly he'll jump a little, give an embarrassed giggle and wiggle, and dash off. We certainly would be much more impressed if somebody bellowed at him over a loudspeaker.

Come to think of it, why have in-plant communications anyway? Most of the calls one gets in business these days are meaningless, or at best can be postponed for a while. Is a man any more an executive because he's pursued all over the place by telephone bells, buzzers, and vibrator-receivers? No. In case of a serious emergency, and there really are very few of those, a specially trained carrier pigeon could be sent out to find the right man.

Let's get a little more privacy into industry. Nerves will be calm, everyone will work better, and then efficiency will go up.

TRANSSCRIPT of a portion of the Barry Gray radio show over Station WMCA in New York on January 17:

"Barry Gray: And now my distinguished guest, formerly the counsel of the United States Senate Internal Security Committee, presently president of Dallas University, Doctor Robert Morris.

"Robert Morris: Well, Barry, I was addressing the Purchasing Agents Association at their regular meeting here at the Statler. I had to address them at a dinner meeting.

"Barry Gray: What are purchasing agents?"

Ma, what is a Barrygray?

DON'T JUST stand there with your mouth open!

A purchasing publication, reporting on an association golf outing, said, "The chicken dinner served has to be eaten to be really appreciated."

THE BIG DIFFERENCE IN A BRUSH IS THIS NAME ON A BRUSH

When you buy brushes that carry the Osborn name, there's no guesswork. You *know* the quality is there. Osborn quality always pays off . . . jobs are done better, quicker, less expensively.

For over 68 years Osborn has made the widest range of fine power, paint and maintenance brushes available anywhere. And even at this moment, the search for improved products is going on at Osborn to make the best even better. For your copy of our new catalog—write or call *The Osborn Manufacturing Company, Department U-63, 5401 Hamilton Avenue, Cleveland 14, Ohio. Phone ENdicott 1-1900.*



Metal Finishing Machines . . . and Finishing Methods
Power, Paint and Maintenance Brushes • Foundry Production Machinery



For More Facts Write No. 195 on Information Card—Page 32

New steels are
born at
Armco

Muscles of Braided Steel Give Union Tuffy Strength-Flexibility-Safety

Taking their cue from nature's arrangement of muscles, Union technicians perfected Union Tuffy Slings with a machine-braided wire fabric construction. The result—muscles of braided steel, so strong, so flexible they perform far beyond the ability of ordinary wire rope. So, for balanced power, safety and dependability, insist on the balanced team of Union Tuffy Slings and Union Wire Rope Tuffy Hoist Lines.

Four Other Union Wire Slings Help You Fill Any Need

In addition to famed Union Tuffy Slings, Union Wire Rope offers, in a full range of sizes:

1. Hand Braided six and eight-part slings.
2. Uni-ply—a flexible multi-part rope laid sling with pressed-on metal ferrule.
3. Press-Grip wire rope sling with pressed-on metal ferrule.
4. Uni-Grip wire rope sling with return loop splice and pressed-on metal ferrule.

Union Wire Rope **Tuffy Tips** on safe use of Slings and Hoist Lines

Hoists vs. Hernia

Proper hoists cost less than hospitalization. A manufacturer said recently 75% of his compensation claims were connected with hernia. The Ohio Bureau of Workmen's Compensation estimated the average hernia claim at \$750. Said a safety magazine: ("Hoists) with proper attention will help substantially in reducing back injuries and hernia claims by reducing the strain on workers."

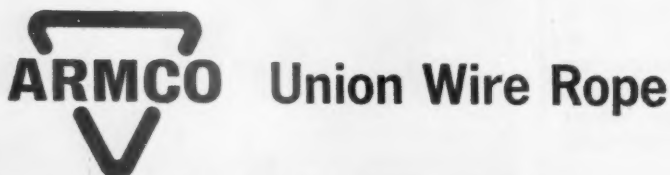


Free! Two Valuable Tuffy Handbooks

1. "Tuffy Tips." Gives many other safety hints. Tells how to break in and properly use wire ropes and slings. Chock-full of do's and don'ts to save money, assure better service.
2. "Tuffy Sling Handbook." Helpful data on the selection and use of slings—types, dimensions, weights, fittings, rated loads, safety-approved signals.



Write Union Wire Rope, Armco Steel Corporation, 2282 Manchester Ave., Kansas City 26, Missouri.



For More Facts Write No. 196 on Information Card—Page 32



P. A. AND FRIEND FIND COOL \$28,000 IN HOT METAL CAR BEARINGS

You're looking at three very pleased men. On the left, the purchasing agent for M. H. Treadwell Co., a major manufacturer of steel mill equipment. He presented his company with savings of \$28,000 in bearings. In the middle, the design engineer to whom he introduced the man on the right. That's the Timken® bearing sales engineer who recommended a smaller, less expensive bearing that had the capacity to handle car loads of molten iron.

Purchasing agents who put their company's engineers in touch with Timken bearing engineers often realize spectacular economies. Timken bearing engineers have

the experience and the know how, and they're backed up by the most advanced testing facilities in the industry. This always results in the most economical bearing applications. Timken bearing engineers can help your engineers select the one bearing, from more than 10,247 sizes and 30 types, that will stretch your bearing dollar the farthest. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO". Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits. Canadian Division: Canadian Timken, St. Thomas, Ontario.

On the spot
engineering
service with...



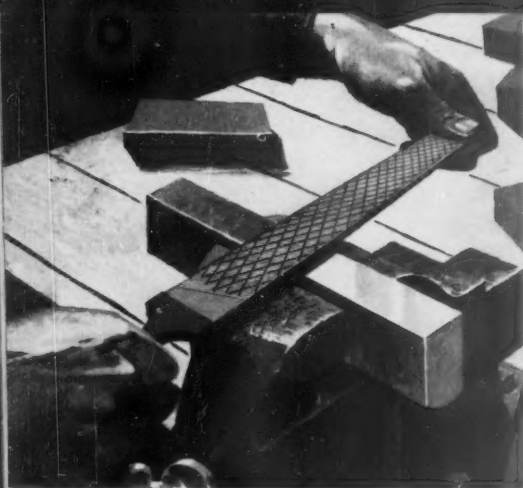
TIMKEN
tapered roller bearings

For More Facts Write No. 197 on Information Card—Page 32

MARCH 13, 1961

For More Facts About Ad
on Following Page Write in No. 198→

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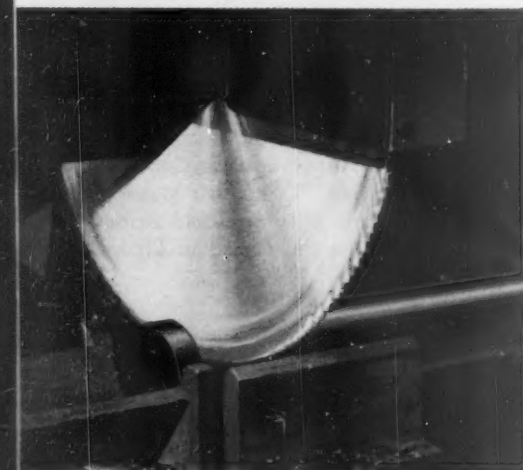
"RED TANG" FILES

For Faster, Easier Filing. Simonds "Red Tang" Files are sharper to start with, hog off more metal per stroke. More wear-resistant, too, they keep on cutting long after other files are dull and useless.



"RED END" HACKSAW BLADES

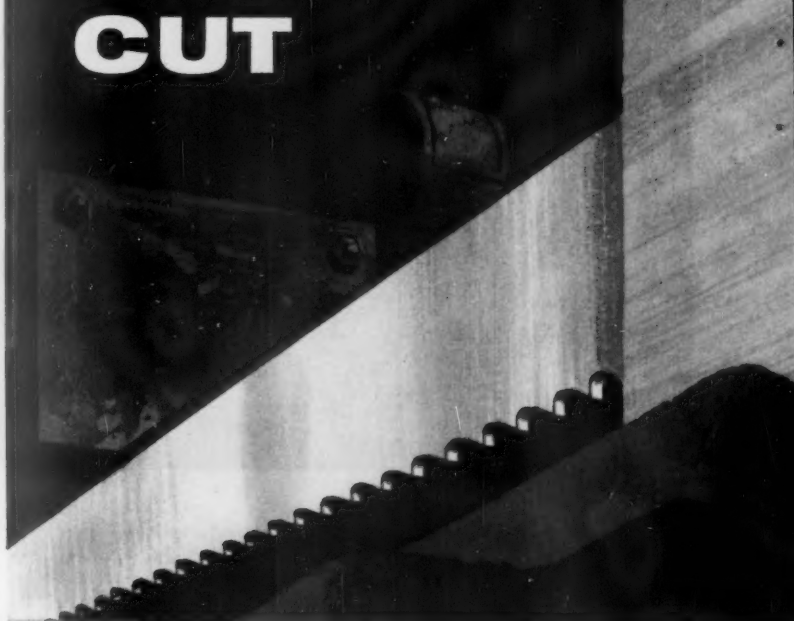
Up Your Cutoff Capacity. Simonds tough "Red End" Blades don't hack, but cut curled chips like the cutting tool on a lathe. Made of cross-rolled steel, they stay sharp longer, resist breakage, cut fast and straight — 3 types (hand and power) for all needs.



SIMONDS CIRCULAR SAWS

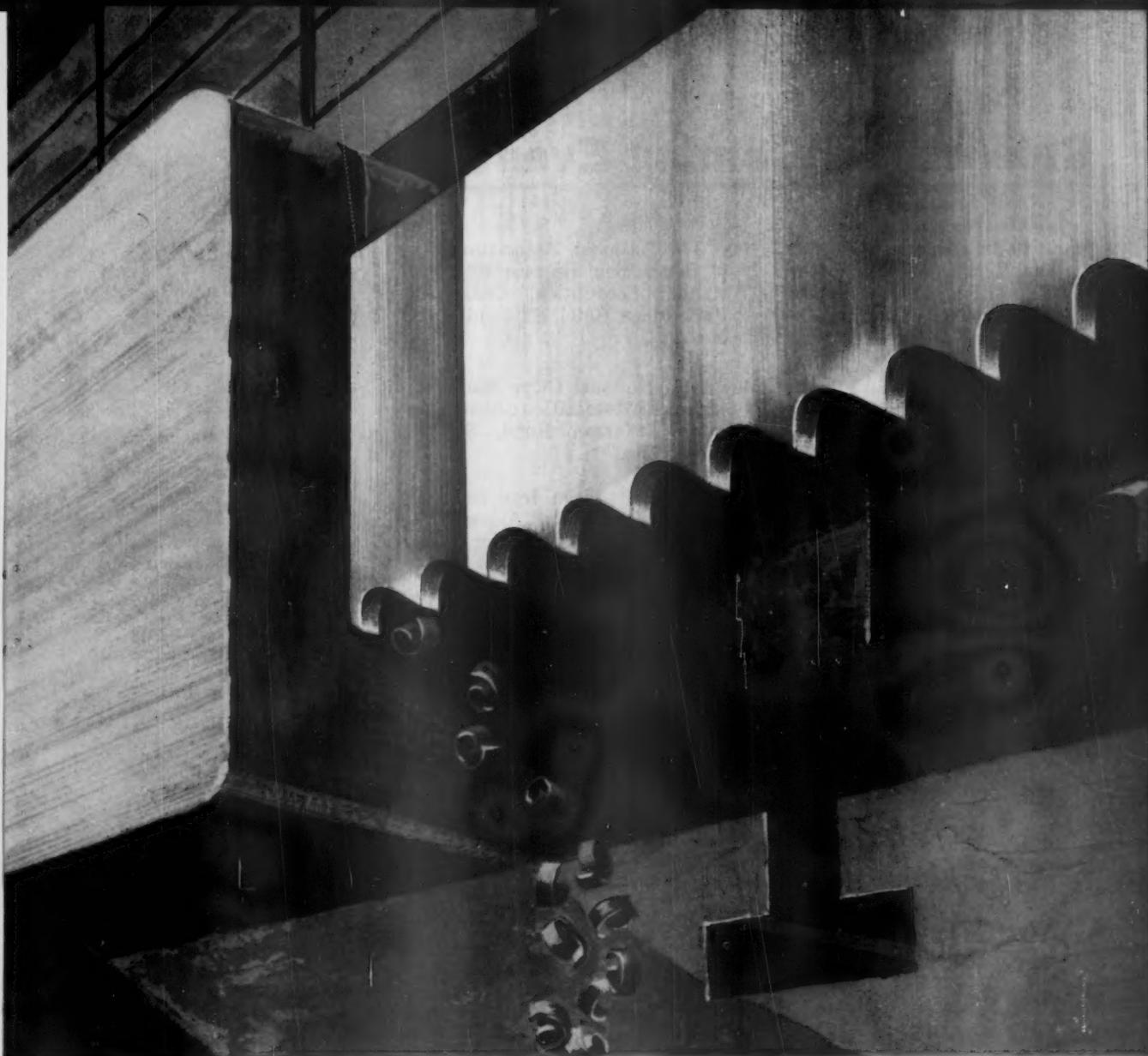
Tops for fast, straight cutting. Simonds Saws are designed and made to stay on the job longer — cut all types of metal — stretch your saw dollars.

SIMONDS MEANS SAVINGS WHATEVER YOU CUT



Up to three with Simonds





times Longer Blade Life

SUPER High Speed Steel Band Saw

A proven fact! No matter what ferrous metal you're cutting, Simonds New SUPER High Speed Steel Band Saw Blade will give you *up to 3 times better performance* than any other high speed steel blade you're now using.

It's the biggest advance ever in metal cutting band saw blades! An entirely new concept — with new steel, new manufacturing methods, new heat treatment, new welding techniques, even new final inspection.

So startling are the performance records this new SUPER High Speed Steel blade is setting, we're offering it to you on a *Performance Guaranteed* basis.

Big savings are also being made with Simonds Standard High Speed Steel blades. Each in its proper application gives you money-saving features no competitive blades can match.

Call your local Simonds Distributor for prompt delivery or additional information.



SIMONDS
SAW AND STEEL CO.

FITCHBURG, MASSACHUSETTS

Buy through your local Simonds Distributor for **TRIPLE'S SERVICE** — Local Stocks — Local Speed — Local Skill

Factory Branches in Union, N. J., Chicago, Shreveport, La., Los Angeles, San Francisco, Portland, Ore. • Canadian Factory in Granby, Que. • Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.; Heller Tool Co., Newcomerstown, Ohio; Simonds Abrasive Co., Philadelphia, Pa. and Arvida, Que., Can.

Calendar of Coming Events

Mar. 20-24. American Society for Metals: Western Metal Exposition and Congress, Pan-Pacific Auditorium, Los Angeles, Calif.

Mar. 21-23. American Power Conference: Sherman Hotel, Chicago, Ill.

Mar. 21-23. National Association of Fleet Administrators: Annual Meeting and Conference, Sheraton - Cadillac Hotel, Detroit, Mich.

Mar. 22-24. Pressed Metal Institute: Spring Technical Meeting, Belmont Plaza Hotel, New York, N.Y.

Mar. 23-25. American Machine Tool Distributors' Association: Spring Meeting, Mark Hopkins Hotel, San Francisco, Calif.

April 7-8. District One, National Association of Purchasing Agents: Victoria, British Columbia, Canada.

April 10-13. American Management Association: 30th National Packaging Exposition, Lakefront Exposition Hall, Chicago, Ill.

April 11-14. Copper & Brass Warehouse Association: Annual Meeting, Broadmoor Hotel, Colorado Springs, Colo.

April 17-21. Office Equipment Manufacturers Exhibits: Coliseum, New York, N. Y.

May 3-5. National Association of Educational Buyers: 40th Annual Convention, Chase Park Plaza Hotel, St. Louis, Mo.

May 7-11. National Office Management Association: Sheraton Jefferson Hotel, St. Louis, Mo.

May 24-25. American Iron and Steel Institute: Annual Meeting, Waldorf-Astoria Hotel, New York, N. Y.

May 24-26. Electronic Industries Association: 37th Annual Convention, Pick-Congress, Chicago, Ill.

May 25-26. National Society of Business Budgeting: Statler Hilton Hotel, Dallas, Tex.

May 29-30. Canadian Purchasing Agents Association: 36th Purchasing Conference and Products Display, Royal York Hotel, Toronto, Canada.

June 4-7. National Association of Purchasing Agents: Annual Convention, Conrad Hilton Hotel, Chicago, Ill.

June 5-9. Society of the Plastics Industry: 9th National Plastics Exposition, Coliseum and Commodore Hotel, New York, N.Y.

June 14-17. Drop Forging Association: Annual Meeting, Greenbrier, White Sulphur Springs, W. Va.

SUBSCRIPTION CORRESPONDENCE AND CHANGE OF ADDRESS: Write to Circulation Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, N. Y. Please give title and company affiliation in all correspondence. Notify us promptly of any change of address. Be sure to give old as well as new address; include postal zone number, and new company name and title. Enclose address label from a recent issue, if possible. Since mailing labels are addressed in advance, please allow 5 weeks for change to become effective.

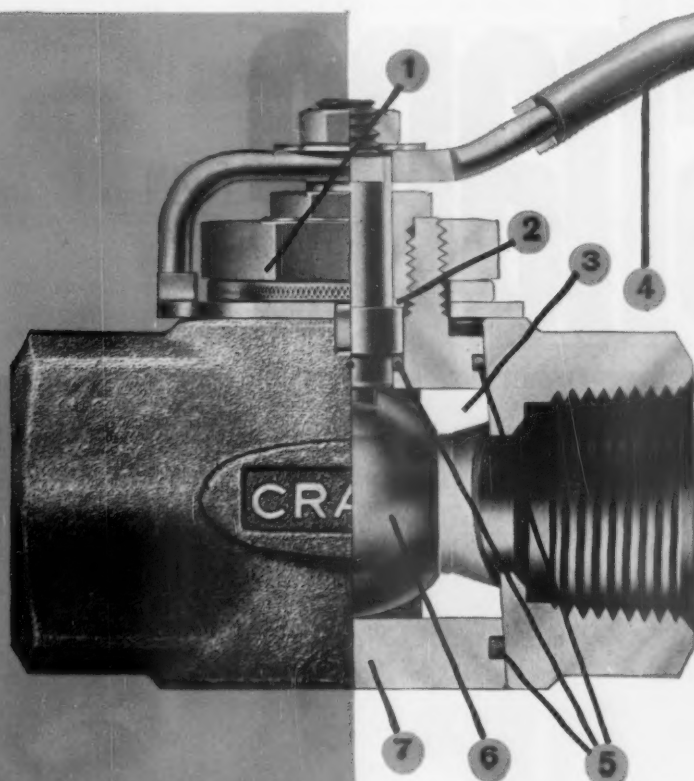
ANOTHER
NEW ACHIEVEMENT
IN MODERN
FLOW CONTROL
BY CRANE

- 1 Single retaining nut holds cartridge assembly in body, for fast, foolproof dismantling and assembly
- 2 Teflon® thrust washer reduces stem friction; absorbs line pressure load on ball
- 3 Teflon® seats pre-loaded for tight shut-off with minimum torque
- 4 Bright plastic grip insulates handle and flags valve position
- 5 Positive, Standard Size O-ring seals on stem, cartridge
- 6 Self-aligning, precision-machined ball, polished and chrome-plated to minimize friction and wear on seats.
- 7 Tapered cartridge contains all working parts; slips out bottom in one piece for cleaning or maintenance

* Teflon is a registered trademark of E. I. DuPont de Nemours & Co., Inc.

CRANE BALL VALVES

with the exclusive tapered cartridge that drops out for fast, in-line servicing
designed to handle all air and water services to 400 F



There's a beautiful simplicity in these newest ball valves—Crane-designed for sure, safe, versatile service. The heart of the valve is a tapered cartridge—remove one retaining nut and the cartridge slips out the bottom for cleaning or maintenance, and then slips back, exactly in place, while the valve body remains in the line. The Teflon* seats are precisely pre-loaded for bottle-tight closing with a quick, easy quarter-turn of the handle—even with air or gas, vacuum to 800 psi, temperatures from -40 to 400 F. The handle is insulated, for hot service, and its bright Crane orange quickly flags the valve position—in-line for open, stand-out for closed.

Crane Ball Valves give you smooth flow; shut off tightly in either direction. All steel parts are plated for corrosion resistance.

Available now for prompt delivery at competitive prices—sizes from $\frac{1}{4}$ " to 2", screwed ends, in bronze, steel and Type 316 stainless.

Call your Crane Distributor or send today for a complete, illustrated folder on the outstanding new Crane Ball Valves, engineered for unmatched service.

CRANE

CRANE CO. Industrial Products Group
4100 South Kedzie Ave., Chicago 32, Ill.
In Canada, Crane Ltd., 1170 Beaver Hall
Square, Montreal

Valves/Electronic Controls/Piping/Plumbing/
Heating/Air Conditioning

ANNOUNCING A NEW
VANADIUM-ALLOYS
DEPARTMENT FOR
TOOL AND SPECIAL
STEELS IN

Cast to Shape FORM



A brand new, completely equipped department for Cast-to-Shape tool and special steels—conventional sand casting or precision casting by the Shaw Process or shell molding—varied melting furnace capacity of 30 pounds, 300 pounds, 1000 pounds and 2000 pounds for flexibility in the casting of special analyses with maximum economy and service to our customers.

STANDARD GRADES

FORMEX—a 5% chrome hot work die steel.
AIREX—a 5% chrome cold work, air hardening die steel.
CROMEX—a 12% chrome cold work die steel.

SPECIAL COMPOSITIONS

Available to customer specifications.

TYPICAL APPLICATIONS

Forming rolls, cams, drop forge trimming dies, forming or blanking dies, molds, draw rings.

For sound castings of closely controlled chemical analysis, and to insure uniformity in machining and heat treating, come to VANADIUM-ALLOYS STEEL COMPANY.

50th Anniversary



VANADIUM-ALLOYS STEEL COMPANY

GENERAL OFFICES: LATROBE, PA.

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1910-1960

Purchasing Pointers

SUCCESS WITH STANDARDIZATION—A look at the most successful standardization programs in large and small companies shows that they have these things in common: (1) There's participation in the program down to the lowest using levels, usually by means of a committee; (2) The small, widely-used items are worked on first, so that the benefits of standardization can be brought home clearly and simply to the largest number of people; (3) Program results, no matter how small, are publicized immediately throughout the plant as part of a continuing campaign of "standardization education."

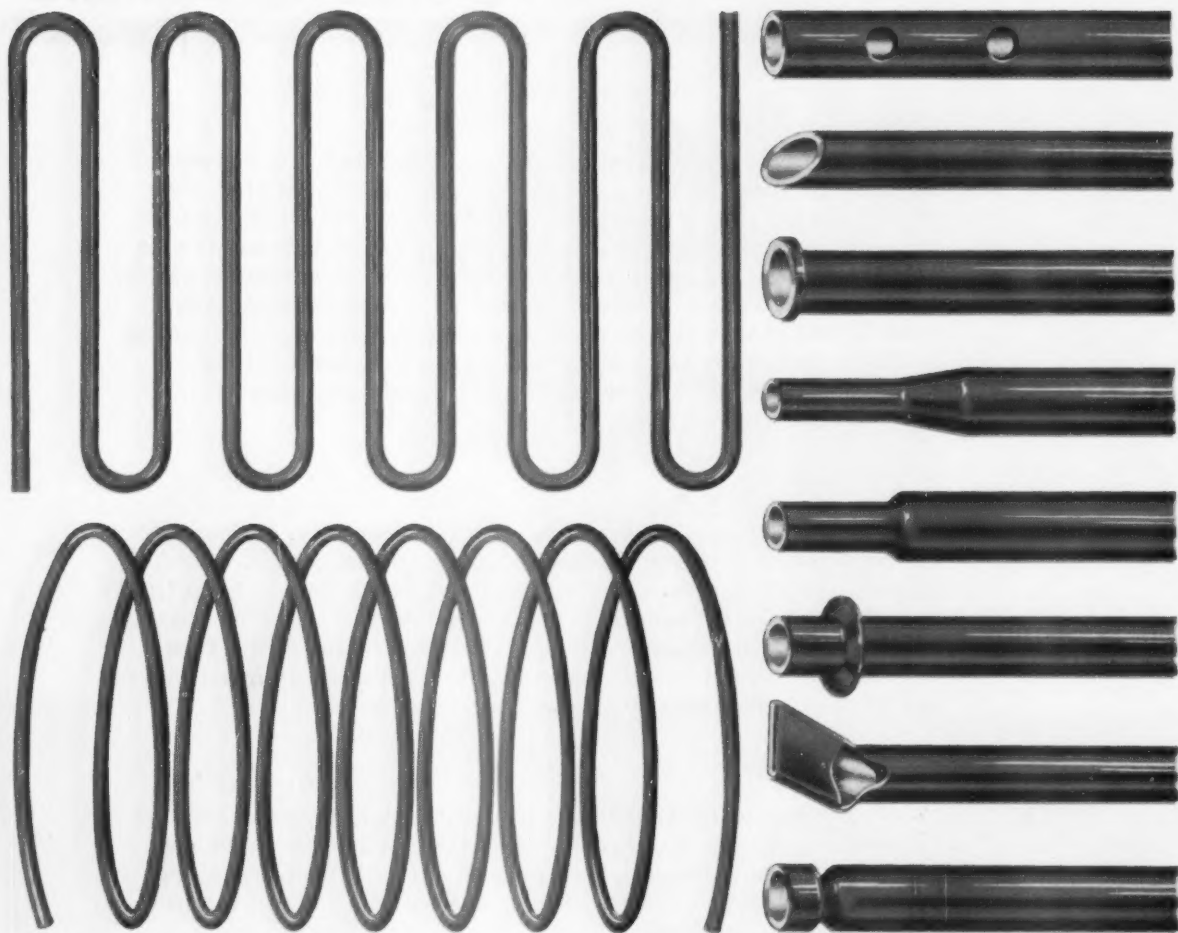
ANOTHER HELPFUL DEPARTMENT—Like engineering or production, finance can be a big help to you in developing more sophisticated purchasing techniques. Ask the financial department's help in securing and interpreting data on suppliers, analyzing their annual reports, and making financial comparisons among them. This kind of expert assistance will be invaluable in negotiation and in developing new sources.

TRIAL ORDERS AND SAMPLES—Indiscriminate use of trial orders and samples is wasteful and often unfair to suppliers. A New York company has found these three rules helpful in establishing a reasonable policy on testing: (1) a buyer must determine that an item has not been tested elsewhere in the plant before asking for a sample; (2) there must be a fair possibility that the company can use the item; (3) suppliers of samples must receive a report on any tests of their products, whether favorable or unfavorable.

IS THERE A SAVING ON FREIGHT?—A P.A. for a leading paper maker looks twice at the "advantages" of increasing order quantities to get volume freight rates. He checks with cost accounting on the costs of carrying the item in inventory. The difference between the savings on volume and the additional storage costs has to be substantial before the new quantity is okayed.

PURCHASING-ENGINEERING CONFERENCES—Why wait for a near-crisis to meet and discuss mutual problems with engineering? P.A.'s, buyers, and engineers in a leading Southeastern company meet at regular intervals—not under pressure of trouble with a specific order—to go over general areas of mutual interest. One session might be devoted to the performance of a large supplier or group of suppliers, another to new material developments. "After a few sessions like these, we respect and understand each other—and help each other—a lot more," reports the director of purchases.

TURN TO ROCHESTER STEEL TUBING . . .



your #1 pipeline to RELIABILITY You'll get refrigeration tubing that's made to work the way you want it to work for as long as you specify. That's the very essence of Rochester Reliability . . . and it means a lot to you. Quality Steel Tubing with mechanical strength far beyond normal stresses. The cleanest tubing you

can buy. Forming facilities that assure flat-as-a-pancake serpentine. Complete end processing facilities. Coiling, up to 2,000 feet, that readily adapts to modern production lines. And you get this with schedule-meeting delivery service. Just write or wire Steel Tubing Sales Manager, Rochester Products Division.



Rochester Reflects Reliability

GENERAL
MOTORS



STEEL TUBING BY ROCHESTER PRODUCTS

ROCHESTER PRODUCTS DIVISION OF GENERAL MOTORS, ROCHESTER, NEW YORK

For More Facts Write No. 201 on Information Card—Page 32



What Kind of Purchasing Education?

PURCHASING MAGAZINE

MARCH 13, 1961

THE COMMITTEE for Economic Development has issued a paper, "The Education of Businessmen," that should be read by all involved in purchasing training or education. It makes particularly good reading for those interested in the Schools and Colleges program of the National Association of Purchasing Agents' Committee for Professional Development—which should include every member of NAPA.

The CED paper is actually a review of two comprehensive studies financed by the Ford Foundation and the Carnegie Corporation. Its comments and recommendations are based on the Ford and Carnegie reports. Whether they will substantially alter the course of business education immediately is problematical. But there is little doubt that they portend some major changes in our business education system in the next several years. These are the highlights of the report:

- Vocationalism, or the overemphasis on training for specific administrative jobs—may block intellectual growth. Instruction in the simpler skills of a job should be left to night schools, company training programs, etc.

- Business courses must be moved from mere descriptions of business practices and the mastery of set routines toward more analytical, problem-solving methods.

- Faculty members must be of a high quality. They should be good teachers with a thorough command of their fields, who generate a substantial amount of research.

Purchasing executives looking for young people who will ultimately take over managerial responsibilities will benefit indirectly from these observations. They can use them as a guide in working with local universities on company training programs, or in selecting graduates for their departments.

But the report is especially valuable in giving focus to NAPA's fine work in promoting purchasing education at the university level. The Schools and Colleges Committee is trying to interest more educators in purchasing, and establishing purchasing as a required course in more curricula. (By and large, purchasing has been neglected by business schools. Even the CED report lists the "traditional" functional areas in business education as accounting, finance, marketing, personnel management, and production.)

By promoting the broad materials management aspects of purchasing, rather than the narrowly specialized skills, and by encouraging the most competent men to teach and research purchasing, NAPA can make a lasting contribution both to business education and the profession it so ably represents. Its efforts deserve the solid support of all of us.

Paul V. Farrell

An Easy Way to Upgrade Buyers

A purchasing executive gives his buyers more responsibility, cuts down on their detail work. This approach has resulted in increased stature for buyers and better purchasing performance for the company.

By Dean Ammer,
Executive Editor

HARRY WURSTER has spent a lot of time on value analysis in the past three years. He is a co-author of N.A.P.A.'s newest booklet, *Value Analysis—An Aid for the Buyer* (along with Wilbur Pierce of Detroit Edison and William Schelbe of Wolverine Tube). He also directed production of the N.A.P.A. Value Analysis and Standardization Committee's slide film strip, "Value Analysis: How It Works," which was based on the value analysis program of

Wyandotte Chemicals Corporation, Wyandotte, Michigan. In addition, he has given at least a dozen talks and presentations on value analysis to various local purchasing agents' associations and other groups.

Meanwhile, Wurster has also held down the job he gets paid for: director of purchases of Wyandotte Chemicals. This job has been more demanding than usual in recent years. The company's expansion program in-

creased its investment in property, plant, and equipment by nearly 50% between 1955 and 1959. So purchasing has had a tremendous amount of construction and equipment buying superimposed on its normal workload.

Wurster cheerfully gives the credit for purchasing's successful handling of this job to his six buyers and his assistant director of purchases, B. H. Miller. In fact, he recently changed the titles of his buyers to reflect what he feels



Suppliers get a friendly welcome at Wyandotte. Director of Purchases Harry Wurster, right, greets representatives of the Michigan Limestone Division of U. S. Steel, E. A. Weymouth, manager of sales and C. G. Hogberg, vice president.



A separate follow-up group in purchasing relieves purchasing agents of most expediting problems. As Expediter Phil DeGrace checks a delivery promise, Elfreda Robinson works on records.

is their actual status in the Wyandotte organization. The new title is "purchasing agent."

Wurster says "the new titles reflect the scope of the buyer's responsibilities more clearly. Each buyer is a specialist who is able to work out the complete details of every purchase transaction including the actual signing of the order. So I feel that the title 'purchasing agent' more accurately describes his job." Wyandotte's buyers are purchasing agents in fact as well as in title because they get involved in a minimum of the routine details that plague so many buyers in other companies.

The Manual Covers Everything

One of the big reasons they are free from routine is Wyandotte's manual. It was prepared by Buyer Edna Kirsten, who doubles as an administrative assistant to Wurster and Miller. Nothing is left to chance in the manual. The duties of clerical help are spelled out in great detail and every phase of the purchasing department's administrative job is also covered.

For example, the manual shows that Virginia Asmus, secretary to Director of Purchases Wurster has the following duties:

1. Handle H. R. Wurster's incoming mail, dictation, and reports; type orders, inquiries; telephone, teletype, telegrams,

pending file, visitors' record; check requisitions for completion; outgoing mail.

2. Coal: Maintain coal follow-up file Reports:

- (a) As invoiced by supplier.
- (b) Cost per million BTU
- (c) Project schedule by supplier (Average costs at mine)

Post:

- (a) Coal analyses
- (b) Coal inventory

3. Foundry Sales:

- (a) Order entry
- (b) Shipping data
- (c) Customer service
- (d) Tabulation of shipments (from invoices)

4. Post invoices to supply contracts for:

- (a) Crude Oil
- (b) Ethylene
- (c) Limestone
- (d) Slag

5. Post and file vendor references for special contracts.

6. Filing:

- (a) Jackets for H. R. Wurster (including correspondence and invoices on jacket orders), subject filing, and pending outside orders.
- (b) Trade Relations
- (c) Crude oil supplements
- (d) E & MJ Metal and Mineral Markets
- (e) Bulletin of the N. A. P. A.
- (f) H.R.W. desk file
- (g) Outside order invoices (Alt. H.L.)
- (h) Maintain subject file and all files for items (b) through (g) (Alt. H.L. for (g) only)

7. (Alt. to A.M.): Daily order and change order count by buyers

Should Miss Asmus be ill or on vacation, there's no confusion



Like all Wyandotte buyers and purchasing agents, Assistant Director of Purchases Burt Miller has a private office and his own secretary.



Purchasing agents work closely with operating personnel. Project Engineer Eugene Hall discusses foundry modernization with Purchasing Agent C. P. Ellis.

VERBAL REQUISITION

TO: Purchasing Department
FROM: _____
DATE: _____
JOB TITLE: _____

Material and Quantity, as requisitioned:

Material and Quantity, as ordered or changed:

Price, as requisitioned: _____
Price this order: _____
Savings per unit: _____
Quantity this order: _____
Savings this order: _____

Annual usage (est.): _____
Annual savings (est.): _____

Method: ☐ Blanket or contract ☐ Make or buy ☐ Requisition cancel ☐ Scheduling - programming ☐ Change specified source class ☐ Packaging and handling ☐ Substitute material ☐ Other (state): _____

Comments: _____

Collaboration: _____

PRICE AND DELIVERY REQUEST PD No. 7714

To: Purchasing Department
From: _____
Date: _____
Using Dept: _____
Plant: _____
Job Title: _____

Please obtain price and delivery information for the following:

Make (describe requirement as complete or complete and include all pertinent information such as material, quantity, number of construction, equipment, electric current, dimensions, etc.).
Supplier (include name of supplier if known).

Supplementary Data (if applicable):

Agency: Date Required: _____ Previous Order No.: _____ Date: _____
Original Manufacturer: _____
Serial No., Model or Type: _____
Other Means Make Date: _____

ABOVE:

Emergencies arise when there isn't sufficient time for routine requisitioning. At Wyandotte, buyers fill out this form when a requisition is phoned in; it is their authority to buy before they receive a confirming requisition.

ABOVE RIGHT:

Purchasing requires that this form be filled out for price and delivery information. It helps cut down on the number of unnecessary requests for information.

RIGHT:

Wyandotte purchasing agents use this form to report value analysis savings. They simply fill it out in long hand and send it to Director of Purchases Wurs'er.

F.O. NO. 7714 DATE: May 5, 1966
REQ. NO. SPR-46157

MATERIAL AND QUANTITY, AS REQUISITIONED:
*5000 Hypocritical Containers for 30 x 10 x 10 in. flat.
Container to be labeled 2 sides in one plant*

MATERIAL AND QUANTITY, AS ORDERED OR CHANGED:
*Containers purchased printed 2 sides, 2 sides
to avoid labeling*

PRICE, AS REQUISITIONED: *1446.500 (1446.500) (1446.500) (1446.500)*
PRICE THIS ORDER: *1446.500*
SAVINGS PER UNIT: *76.32.00*
QUANTITY THIS ORDER: *500*
SAVINGS THIS ORDER: *322.50*

ANNUAL USAGE (EST.): *1000*
ANNUAL SAVINGS (EST.): *763.00*

METHOD: ☐ GROUPING ☐ REQUISITION CANCEL ☐ SCHEDULING - PROGRAMMING
☐ BLANKET OR CONTRACT ☐ MAKE OR BUY ☐ SCHEDULING - PROGRAMMING
☐ CHANGE SPECIFIED SOURCE CLASS ☐ PACKAGING AND HANDLING ☐ SUBSTITUTE MATERIAL
☐ OTHER (STATE): _____

COMMENTS: _____

COLLABORATION: *R. Paine, J. W. Paine*

1347714

about what her job is. Her duties can be delegated completely to a substitute or they can be split among the other girls in the department. In either case, her job will get done. The person who substitutes for Miss Asmus or another girl who is absent, has more than just the list of duties in the manual to follow. Most assignments are also covered in some detail. For example, the following procedure covers filing of routine intra-company correspondence:

SUBJECT CORRESPONDENCE —INTEROFFICE

CONTENTS: Memoranda to and from the various other offices and departments of the Corporation, pertaining to general subjects. When the memo concerns a specific vendor, the copy should be filed under that vendor's name in the regular correspondence file.

METHOD: File folders, labeled with name of originating office or department, in alphabetical order. Contents in chronological sequence, with the most recently dated to the front of the folder.

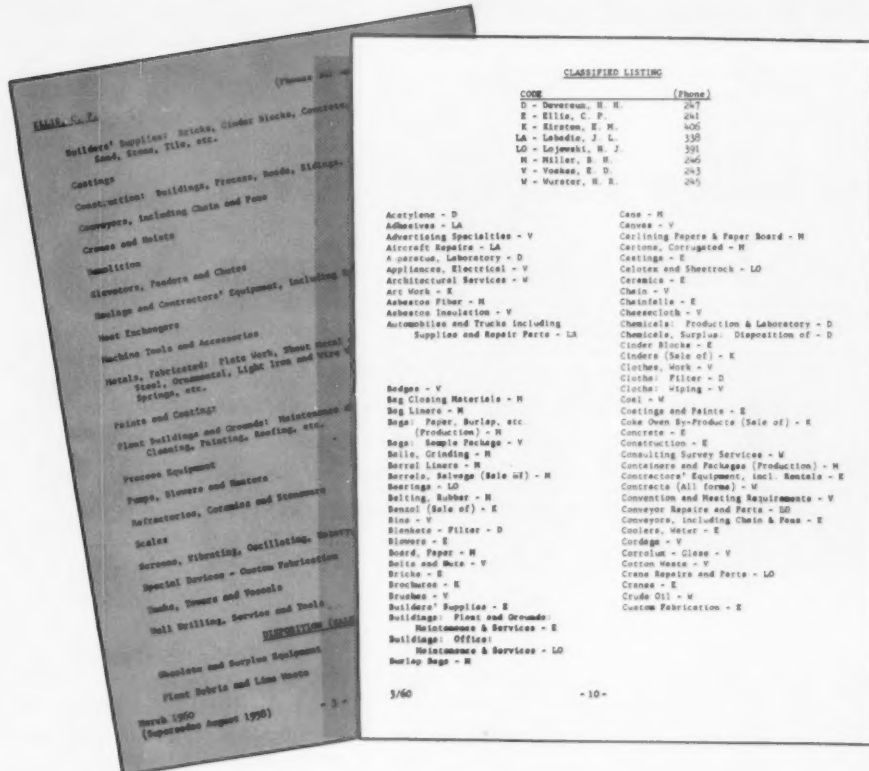
RETENTION: Three years. Current plus immediate past year

in Purchasing Department, with the third year in Records Retention Center.

FILED BY: See list of duties.

SET-UP: Pressboard alphabetical guides #880B-1-2-A-Z; GoldenKraft folders #8203R-2-3, 1/3 cut, alternating tab; and labels Y & E #99 (W.C.C. Stores Catalog No. 3270), green, buff and salmon alternately each year.

TRANSFER: About December 10 each year, transfer third year to Records Retention Center. Alphabetical guides must be removed prior to transfer. These will be used for new current year, with new set of file folders.



ORDER: Folders and labels. Other timesaving forms and procedures help purchasing personnel do their job efficiently with minimum effort. Particularly interesting are Wyandotte's visitor's record, price and delivery request form, commodity list, and an oral requisition.

Visitors' Record. Like many other companies, Wyandotte requires each visitor to register. Unlike other companies, Wyandotte purchasing uses this record for something other than counting number of callers per year, etc. It uses the record to measure vendor performance and occasionally finds it helpful on trade relations problems. Each time a supplier salesman calls, his visit is noted in a file that is kept on that supplier. Should Wyandotte later decide to cancel its business with the supplier because of poor service, it has an excellent record on which to base its decision. The record is particularly useful should a Wyandotte customer complain he is not being treated fairly by the purchasing department. If the customer's salesman

never call on purchasing, then they can hardly expect to get orders.

Information for Requisitioners. Wyandotte's purchasing department, like most other purchasing departments, gets many requests for price and delivery information on purchased materials from engineers, product planners, and others. A price record clerk keeps a detailed record of each purchase, filed by commodity, and can handle many routine requests for price information without bothering the buyers. The buyers must be interrupted, however, if the request is for an item with no purchase history. Each such request consumes a few minutes of the buyer's time. Purchasing naturally doesn't object to such requests provided the person asking for help just isn't satisfying his idle curiosity but has a legitimate need for the information. To make certain such requests are legitimate, purchasing requests that those interested in price and delivery information fill out numbered Price and Delivery Requests forms.

Commodity List. Requisitioners have no trouble figuring out whom to contact in purchasing about materials they are interested in obtaining. They can refer to "Who Buys What," purchasing's 14-page directory. The "green pages" of the directory list the buyers and the commodities each handles. The "yellow pages" list the commodities in alphabetical order and the buyer code (usually the initial of the buyer's last name—for example, code "D" is for Buyer Devereux and "E" is for Buyer Ellis). The code not only makes it easier for requisitioners and others to contact the right buyer, it has also probably prevented Director of Purchases Wurster's sleep from being interrupted by a telephone call in the middle of the night. Wyandotte's plants operate 24 hours a day, 7 days per week. If there is a break-down involving any purchased item and a replacement is not available from stores, someone in purchasing may get a telephone call. With the commodity list, the superintendent can figure out what buyer he should call at home (all (Please turn to page 206)

Cost Reduction Program Saves \$550,000 in Six Years

An organized plan for cutting materials costs at Behr-Manning Co. saves money, keeps buyers on their toes. By analyzing potential areas for cost reductions and working closely with suppliers, the purchasing department adds considerably to company profits.

By Leonard Sloane,
News Editor

A COST reduction program for raw materials set up by the purchasing department at Behr-Manning Co. has saved \$550,000 on 100 items in the last six years.

The program covers all the materials used in producing coated abrasives, sharpening stones, and pressure-sensitive tapes. It also includes the fuels used to operate the company's 75-acre facility in Troy, N. Y.

"We try to do the best we can to make savings whenever and wherever possible," says Behr-Manning P.A. Mark Patten. "The small savings of \$20 and \$30 in some ways are as important to us as the larger ones. If a buyer who handles only small volume materials turns up quite a few \$50 cost reductions he's likely to be promoted to a better job where he'd have an opportunity to use the same techniques to make larger savings."

Every month Patten holds a meeting with his assistant P.A. and five buyers to go over the savings that they've made. Here are some typical examples of the cost reduction changes that are discussed at these meetings:

(1) Bituminous Coal—The company had been buying a low volatile coal—which sells for a premium. Reason for this was that the company pulverizes its own

coal and its engineers felt that it was easier to pulverize the cleaner, more expensive low volatile type.

A group of coal suppliers were called in and asked to analyze the problem. Working with purchasing, they made a complete survey of Behr-Manning's coal requirements and came up with a money-saving solution.

Since the real cost of any fuel is determined by the amount spent per BTU, the purchasing-

vendor team decided to switch to a cheaper, high volatile coal. Although this type of coal has more impurities and is harder to grind, the total cost of buying and pulverizing was still less than with the low volatile coal.

To double-check its findings, the team asked a fuel consulting company to make recommendations on the same subject. After a thorough cost study, the consultants backed up the original suggestion.

Despite this support, there was still another obstacle to overcome before making the substitution. The engineering department said the high volatile coal would wear out the pulverizing hammers at a much faster rate—and therefore didn't agree with the suggested change.

Again, purchasing looked into the problem. Its investigation led engineers to study the installation of carbide tips on the pulverizing hammers to extend their life. This idea was accepted by engineering and the change went through. Annual savings to Behr-Manning: \$15,000 to \$20,000.

(2) Consolidating Solvent Purchases—Behr-Manning buys large quantities of solvents. The solvents had always been bought in carload or truckload drums. Despite the fact that Behr-Manning's



Behr-Manning P. A. Mark Patten: "In some ways the small savings are as important as the large ones."

sales increased substantially in the last five years—and its volume of solvent purchases went up—no changes had been made in the way the solvents were bought.

Purchasing made an analysis of the problem and found it could cut cost considerably by consolidating purchases into tank-truck quantities.

Patten found that the saving on tankload quantities of solvents, compared with drum purchases, was substantial. The cost of a 10,000-gallon tank amounted to approximately \$12,000, but it was felt the savings on the cost of the solvents would offset this expense in a relatively short time.

Net result was the installation of five 10,000-gallon tanks for liquid solvents at the Behr-Manning plant.

(3) Buying for Value—Part of the success of Behr-Manning's material cost reduction program is due to Patten's insistence on buying for value. Over the years, he has impressed on his buyers the theme of not "buying a Cadillac when a Chevrolet will do."

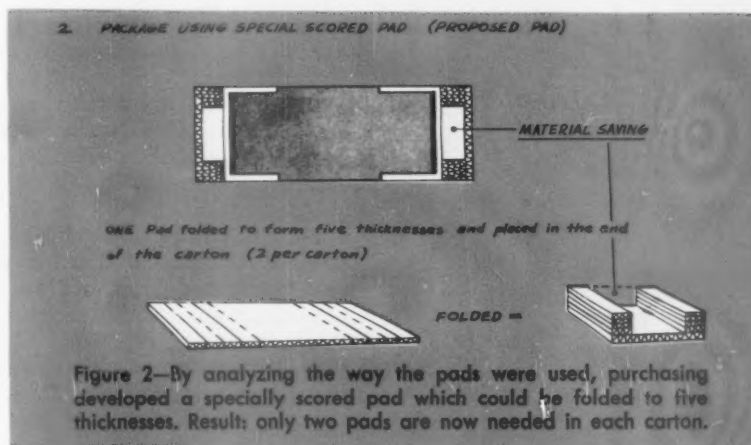
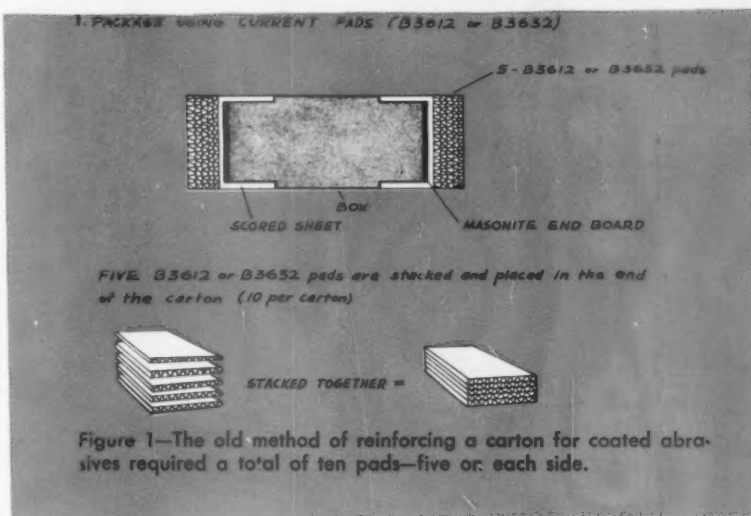
An example of how this approach pays off: While purchasing a bulk wrapper for one of 37,000 coated abrasive items produced by Behr-Manning, Assistant P.A. Abrahamson found that the packaging material being used was much better than needed.

The company was using a buff manila-lined newsboard to wrap the abrasives before shipping them out. Calling on his extensive knowledge of packaging, Abrahamson suggested substituting plain chipboard—a less expensive material—to do the job. The chipboard proved to be adequate and the change is saving Behr-Manning \$22,560 per year.

(4) Scrap Corrugated Pad—Behr-Manning buys a large amount of scrap corrugated pad each year for cushioning cartons. Because of the large amount of money being spent on the corrugated pads purchasing called in the dealer who supplies this material to see if any savings could be worked out.

The collaboration brought quick results. Within a matter of weeks,

Cost Reduction in Packaging



the supplier recommended a change in one item that was used to reinforce a box containing a number of abrasives.


Previously five pads (known as B3612 or B3632) had been used. These were stacked together and placed in each end of the carton (see Fig. 1). This meant that ten pads had to be used in each carton that was shipped.

The suggested change made use of a special scored pad (see Fig. 2). Only one pad had to be used at each end of the carton, because it was designed to be folded to form five thicknesses. The saving from this change totaled \$6300 a year.

In analyzing his material cost

reduction program, P.A. Patten says, "we can't accomplish anything without the cooperation of the requisitioning areas in the plant. If we explain to them what we'd like to do and speak their own language, they'll generally go along with us. But it can't be done by a management dictate or memo alone."

Through 1960, the purchasing cost reduction program saved Behr-Manning \$550,000. This figure is the total of the new savings along with the continuing savings from cost reduction changes made in the past. Patten looks on 1961 as another chance for purchasing to make a significant contribution to Behr-Manning profits. ► END



Lumber Buying Plan Saves \$25,000

Crating material doesn't seem a likely target for value analysis—unless you're spending \$200,000 a year on it. Here's how costs on just this one expense item were cut 12½% by a unique buyer-seller effort for better value.

VALUE ANALYZE expense materials? Strictly speaking, maybe you can't since the design factor is almost nonexistent in expense items.

But you can use a value analysis approach to buying non-production materials. We did it with lumber and saved \$25,000 in one year.

Our division had been spending \$200,000 a year for lumber to crate parts and block and brace huge turbines and accessory equipment for shipment. Our prime source, a nearby lumber company, always had competitive prices, good delivery, and excellent service. But with this much money involved, we couldn't afford to become complacent.

We formed a cost-reduction team about 18 months ago. It was headed by the supervisory buyer, and included representatives from the shipping department and the lumber company. The unique program of methods, materials and equipment they developed has improved operations for both Westinghouse and the lumber company.

The first move was a stocking arrangement at the supplier's yards. The lumber company agreed to carry additional quantities of common Ponderosa white pine to meet division requirements. This supplanted the usual method of ordering carload quantities which required lengthy lead

times. The lumber company agreed to make deliveries as requested at a service charge of \$10 per thousand board feet over the market price. Delivery to the shipping department was even faster from the lumber yard than from Westinghouse inventory, where a wait for a fork truck is the rule rather than the exception. The extra charge seemed a fair price to pay for carrying inventory.

Reduce Service Charge

After a six-month trial period, the committee reviewed the program. The shipping department was satisfied with the service but purchasing thought something could be done to reduce the service charge. With the purchasing department acting as an advisor, the lumber company started its own value analysis program. Any savings were to be passed on to Westinghouse by reducing the service charge.

These were some of the results:

(1) Purchasing suggested the lumber company purchase a second-hand fork truck to load delivery trucks. This innovation greatly reduced handling time in the supplier's yards.

(2) Use of the fork truck also enabled the supplier to change

This article was prepared by Clarence Greenway, staff supervisor, and James W. Ballantine, supervisory buyer, in Westinghouse Electric Corp.'s Steam Division, Lester, Pa.

PURCHASE ORDER
FORM 100-1000

Westinghouse
ELECTRIC CORPORATION
STEAM DIVISION
LESTER BRANCH P. O., PHILADELPHIA 13, PA.

DATE: 1/4/60

INVOICE # (DUPLICATE)

ORDER PLACED WITH: LUMBER SUPPLIER

SHIP TO: WESTINGHOUSE

PLEASE SUPPLY THE FOLLOWING LUMBER in terms and quantities printed on this form, not in specifications, drawings and standards.

TO COVER OUR REQUIREMENTS OF #2 COMMON OR BETTER 8" X 10" YELLOW PINE, ROUGH, 10 TO 18 FT. LONG FOR PERIOD JAN. 4, 1960 TO DECEMBER 30, 1960.

PRICE TO BE ESTABLISHED EVERY 3 MONTHS.

THIS ORDER MAY BE CANCELLED BY EITHER PARTY AT THE END OF ANY QUARTER.

LUMBER MUST BE Banded FOR FORK LIFT UNITS IN APPROX. 2,000 FT. UNITS.

TALLY LIST MUST ACCOMPANY EACH SHIPMENT.

DEST. PPD. & ALLD.

AS REQUESTED YOUR TRUCK

INSTRUCTIONS TO SUPPLIER:

1. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
2. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
3. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
4. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
5. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
6. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
7. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
8. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
9. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.
10. LUMBER TO BE SHIPPED IN BOXCAR OR FLATCAR.

Familiar blanket order (above, left) is issued for each size each calendar year. Consolidated release (right) issued by shipping department covers weekly requirements for a given month. Each X on the chart represents what would have been an individual release under the old system.

Lumber Supplies

Release Date October 24, 1960

WEEK OF: Month November

SIZE	PURCHASE ORDER	TRUCKLOAD QUANTITIES	7th	14th	21st	28th
2 x 4 YP	51-115540	5,000'				
2 x 6 YP	51-115541	5,000'	X			
3 x 6 YP	51-115542	10,000'	X			X
4 x 10 YP	51-115545	10,000'	X			X
6 x 6 YP	51-115544	10,000'		X		
4 x 6 YP	51-115543	5,000'	X			
6 x 8 Oak 32'	51-115547	5,000'		X		X
6 x 8 Oak 20'	51-115547	5,000'		X		X
4 x 6 Oak	51-115546	5,000'			X	
4/4	51-127022	12,000'		X		
5/4	51-127023	12,000'	X		X	

Copies: Receiving Department (2)
Shipping Department
Accounting Department

Westinghouse Electric Corporation
Purchasing Department, Buyer

buying methods. He saved \$2.50 per thousand board feet by buying lumber in boxcars rather than open flatcars. Lumber shipped on flatcars must be packaged with steel strapping; boxcar shipments do not require this. Labor was available on a salary basis to permit unloading in spare time. So no additional costs were incurred.

(3) The lumber company began to segregate the better grades of lumber from each carload for sales to cabinet and pattern makers at higher prices. The functional needs of Westinghouse could still be met with the remaining lumber. An average savings of \$2 a thousand board feet resulted.

(4) Our purchasing department helped to establish other customers in the area for the same grade of lumber. Volume buying enabled the lumberyard to cut

costs another \$2 per thousand board feet.

This cooperative effort definitely helped both buyer and seller. On the basis of improved operations and an increased volume of business, the yard agreed to entirely eliminate the handling charge.

Service Up, Costs Down

We saved more than the service charge, however, since all the problems of carrying inventory—capital, storage, handling, deterioration, insurance, taxes—were reduced. And service was greatly improved.

Efforts to improve value received did not stop there, however. Function has to be considered in expense materials, too. The next step was a closer look at the requirements for shipping

lumber. The question was simply: "Are we using the right grade of lumber to ship our turbines?" Grade #3 had been the standard for some time and nobody had given it much thought. Grade #4 appeared to be out of the question. After a careful study, the decision was to use a combination of the two grades. Savings from this change alone have been significant.

The latest development in the program has been a revision in the method of ordering. A blanket-order system had been in effect for some time. Since there were frequent premium charges for delivery on items not normally stocked by the supplier, something had to be done to help the supplier with his stock control problem. The answer was obvi-

(Please turn to page 212)

Honor System for MRO Buying

Dundee Cement's unique "honor" system delegates most purchasing and stores responsibilities to suppliers. The results: lower costs of materials and less paperwork.

By Ted Metaxas,
Midwestern Editor

DRIVING down high speed Route 23 to Dundee Cement Co., industrial distributor salesman Smith will soon play his part in an "honor" system for purchasing maintenance and repair supplies. After parking in the lot of the Dundee, Mich., plant, he registers at the lobby, bypasses purchasing and walks directly to the stores building.

There, he goes to a row or two of steel shelves in which the components he sells to Dundee are stocked. Bin by bin he inspects quantities of parts therein. When he detects a low spot, he pulls an IBM punch card from a plastic case magnetically attached to that shelf. On a Dundee requisition form, he jots down the quantity he believes the company will need and transcribes punch card information describing the part and its number.

By the time he has finished scanning inventory levels, Smith has probably entered several items on the requisition.

Seeking out the stores supervisor, he hands him a copy of the requisition and says: "These are the parts I'll have to sell you this week."

After reading the form quickly, the supervisor replies, "Okay,

you're the boss."

With this oral approval, Smith departs and later that day submits a copy of the requisition to his firm. While Dundee is preparing a purchase order from its copy of the requisition, the distributor fills the order. When the P.O. arrives, usually on the next morning, the supplier ships the pre-assembled order without delay. In this way, Dundee has just



Dundee Cement's Doug Shanks works on stock status report prepared weekly by IBM. With his "honor" system for purchasing and issuing maintenance and repair supplies, he has reduced paperwork and saved time.

purchased MRO supplies. Eventually, even the purchase order will be eliminated from the system.

Installer of the "honor" system is Doug Shanks, 31, a self-educated purchasing executive with an urgent desire to develop new methods. Purchasing agent for the plant since it opened about a year ago, he has recently been promoted to superintendent of services—indicating that he spends 10% of his time on stores control, labor relations, safety, and shipping.

Dundee's maintenance and repair parts inventory towers to \$400,000, much of it invested in massive and diverse spare parts needed for immediate repairs to costly kilns, grinding mills, etc. A gear and pinion set for a grinding mill, for example, is priced at \$40,000—but must be stocked because the set requires several months delivery time.

Almost as soon as Dundee's computer entered the plant, Shanks placed maintenance stores under IBM control, dividing inventory into:

1. Spare parts—including specific critical parts for machines.
2. Expendable parts—covering standard replacement items, such



Frank Hipp, of Graybar Electric Co., takes inventory of his supplies at Dundee Cement, noting stock number and quantity needed to bring supply up to normal. Supplier salesmen are solely responsible for inventory levels and for keeping shelves tidy.



At oral request of maintenance man, stores supervisor Jay Sims removes spare part and its punch card. After he notes quantity withdrawn on card, it goes to IBM for processing. Supply of punch cards for each part is kept in plastic case magnetically attached to bin.

as nuts and bolts, V-belts, pipe and fittings, etc.

Shanks had decided that old methods of buying MRO supplies were fraught with paperwork and delays. He considered using traveling requisitions, skeletonized forms, and phone purchase orders.

Use Local Supplier

Still dissatisfied, he reasoned that perhaps the only way to have all parts always in abundant supply without a storm of paper was to transfer the buying and stocking responsibility to local supplier salesmen. This would expunge much of the paperwork which Shanks describes as "imperfect and often belated".

The first thing he did was to break down his expendable parts into family groups, as follows:

1. Pipe and pipe fittings
2. Nuts and bolts
3. Electrical hardware and lighting
4. Electronic and electrical parts
5. Safety supplies
6. V-belts and mechanical power transmission components
7. Bearings
8. Maintenance steel
9. Lubricants

10. Welding supplies

11. Miscellaneous hardware, ranging from hand tools to wire rope.

From the standpoint of dollar volume, Shanks realized that each category above would be a lush account for a supplier. Desiring one distributor for each MRO grouping, he began to investigate local mill supply and specialized houses.

Important in his evaluations were the brands of products stocked and the reputation and reliability of distributors. Whittling away at an initially long list, Shanks came to a hard core of prospects. After interviewing their salesmen, he made his selections.

Here is the deal Shanks closed with his 11 suppliers: Under a gentlemen's agreement, Dundee guarantees a distributor salesman all its business in one family of expendable parts for six months. If a salesman fulfills his duties adequately during the "contract" period, the guarantee is extended for another half year.

Sales volume in the expendable groups ranges from \$1000 to \$3000 per month. But to earn such a "monopoly", a distributor salesman must assume certain responsibilities. Most important, he must

check the inventory of his parts at Dundee to make sure that the company always has an adequate supply that does not exceed six months. This obligation is solely his. In effect, he is the buyer for Dundee. Also, the salesman must keep his shelves tidy and participate in an annual inventory of parts.

If he notices that infrequently purchased parts are entering standard usage, he arranges for a supply to be placed in Dundee shelves. Should a price hike be imminent, the salesman must notify Shanks, who then decides on the advisability of a larger-than-usual purchase. Parts placed in Dundee inventory must be backed by adequate stocks at the supply house.

Get Guarantee in Writing

Sound easy? Not quite. Distributors must guarantee in writing that if at year's end Shanks declares certain parts as surplus, they must be removed by the supplier and their full purchase price refunded to Dundee. Naturally, these parts must be in their original containers.

"If we have to bounce back too much material, you can be certain that the salesman will be in trou-

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Although the purists may be shocked by the informality of stock control at Dundee, Shanks has an incontrovertible argument for his system: "It works. Our costs are lower in every area—and the bugaboo of pilferage has not materialized." ► END

SOME "specials" just have to be expensive. But many others do not. The buyer who thinks he needs a special should first ask these questions:

1. Is it really a special, or does some manufacturer make it as a standard?
2. If a special, need it be so—or could a standard be made to do the job just as well?
3. If still a special, is it (or can it be made) an economical special?

In the last category are what we call the near-standard specials or the "standard except"—that is, specials based on modifications to standard blanks, often at little extra cost. Many of these are so regularly in demand, despite the wealth of standard industrial components, that they verge on being standards themselves; and some manufacturers are set up to handle them almost as speedily and economically as standards.

Purchasing agents may not realize how many economical specials there are, and so pay more than they should for their needs. Recently a very minor modification suggested by our specials group on a socket head cap screw cut the price to the purchaser from \$28 per hundred to \$8.75 per hundred. What's more, delivery was speeded considerably.

Give Supplier All Details

Where specials do cost more, the question of "How much more" depends to a large extent on the purchaser. He does himself a disservice if his inquiry goes no further than "This is what I want. Can you give it to me? How fast? What price?" It gives the supplier little leeway to bring in his product knowledge and manufacturing capabilities. The wise purchasing agent will write general specifications which leave his supplier room to pin-point suggestions.

A typical inquiry best points up the three-point specials approach:

Is it really a special?

A purchasing agent for a manufacturer of aluminum extrusions needs socket head cap screws. They must be 1"-8 x 3½" in size, with a head diameter of 1-7/16" (rather

Specials:

Must They Be Expensive?

Many suppliers, especially in the fasteners field, can provide "near-standard" specials that cost only a little extra. Here are some suggestions that may save you time and money.

By C. A. Hansen,

Manager, Special Industrial Fasteners Div.,
Standard Pressed Steel Co.

than the normal 1-5/16" head O.D.) and with a grip length of 1½". In the context of his everyday fastener requirements, the P.A. concludes that he needs a special. But perhaps a standard fastener or an inexpensive modification of a standard may be available for the job.

First, is it really a special? This may be a simple job of scanning the catalog, or a task for the "specials" specialist. The item above turns out to be a special since there are no standard 1" diameter socket head screws with 1-7/16" head O.D., or with ½" grip length.

Does it have to be?

Then, secondly, does it have to be a special to do the job? The vendor is best qualified to determine whether the requested special is close enough to an available standard so that with a minor change in the specs a standard might serve just as well. Here again, to be able to suggest time- and money-saving alternatives the supplier must get all the facts. In

the hypothetical case above, the user needed both the additional bearing surface under the head and the special grip length. A special was the only product to do the job.

There are, however, many cases where unnecessarily tight specifications result in orders for specials. For example, a purchase order calls for type 305 stainless steel fasteners. Perhaps the buyer has used them before, or perhaps on his last order the supplier was running this type. But now he is running type 304 stainless. This will give the user all the properties he needs even though it is not what he asked for. Because his specs are too exact he can end up paying a special price for fasteners he doesn't need to do the job.

If, as is likely, all he needs is a relatively high-strength, high-corrosion-resistant stainless fastener, the buyer could specify "300 series stainless," or ask for an austenitic stainless material.

Specifying, through habit, exact thread lengths that (Turn Page)

Cut Costs With Near-Standard Fasteners

Although each of these screws has one special feature, they are so close to standard that they cost little more. They represent but a few of the "almost-standard" fasteners that could replace many specials now used in industry.

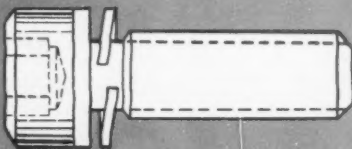


NYLON INSERT

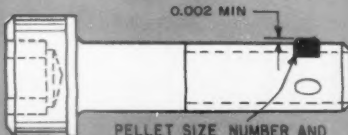
Set screw is standard except for nylon insert tip, which makes it possible for the screw to be tightened on fragile or soft materials.



Low-head cap screw has head half as high as standard. It is designed for assemblies where headspace is limited.

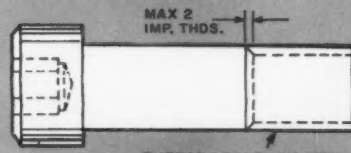


Lock washer on necked-in area speeds assembly and prevents equipment failure due to missing washer.



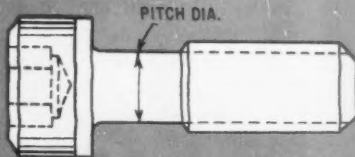
0.002 MIN.
PELLET SIZE NUMBER AND LOCATIONS TO CUSTOMER SPECIFICATIONS

Nylon locking pellet is the only special feature on this standard cap screw. Size and location of pellet can be specified by the user.

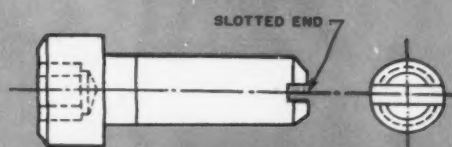


MAX 2 IMP. THDS.
THREAD LENGTH AS PER CUSTOMER SPECIFICATIONS

Cap screw with special thread length can be made to suit any stripping strength.



Captive socket screw with reduced diameter shank, used in panels and covers, won't fall out during assembly.



Standard sockethead cap screw with slotted point can be turned from either end.

are not really critical, is another example of too-tight specification.

Can it be a near-standard special?

But if, after the first two checks, it still has to be a special, must it be an expensive special?

The purchaser should recognize that some specials add substantially to costs; some do not. The "standard except" fastener can be produced by modifying a standard or a standard blank. This simple change requires a minimum of extra engineering time, processing variations, or change in material. A tooling or setup charge may be

the only extra cost involved and, in quantity, these near-standard components can often be sold at little premium in cost over standards.

Sometimes, the specials-conscious vendor can suggest a specs modification to put the part into this "standard except" group. The socket screws in the case above ended up here. The vendor determined that the slightly larger 1½" head diameter in the new "1960 series" (large head) socket screw standard would be acceptable. The screws could then be made from "1960 series" blanks

in stock, with only the thread length, and thus the threading, special.

Within this low-cost specials group in the fastener field is a wide range of "near standard" specials. Some merely provide variations of existing standard specifications, such as head height, thread length, or degree of locking action on self-locking screws. Others provide a new or added function, such as a socket-head screw with cross drilled holes, or a bolt with locking washer held captive on the shank, or a cap

(Please turn to page 210)

HOW DOES a new P.A. for a brand new company feel? What are his plans? What are his problems?

Jim Kershner took over the purchasing job for Monitor Systems, Inc. just a few weeks ago. The company itself is only a year old. Its new plant in Fort Washington, Pa., was completed early in 1960. By the end of last year its employees numbered fewer than 50.

But MSI is no struggling infant. It has already produced, and sold, a number of advanced monitoring systems—exceptionally reliable electronic assemblies—that have gained wide acceptance in the atomic energy, aircraft, and processing industries. Today Kershner may place no more than 45 orders a week, but his job is growing fast.

Under these conditions, a purchasing agent can't boast any fancy systems or point to remarkable achievements in cost reduction. His job—and his problems—are still mostly in the future. "I've had no real problems yet," says Kershner. His biggest job right now is planning a purchasing program that will work today and still be able to expand

rapidly without bogging down in sheer volume. His plans include himself, his co-workers, and his vendors. Here is what he has to say about the more important ones.

Getting an education. "For myself," Kershner says, "constant

education is most important." He comes to MSI with a business administration degree and considerable experience in electronics purchasing. He is determined, however, to find out what other companies are doing. For this reason he takes every evening course

(Please turn to page 194)

One-Man Purchasing Department Plans for Growth

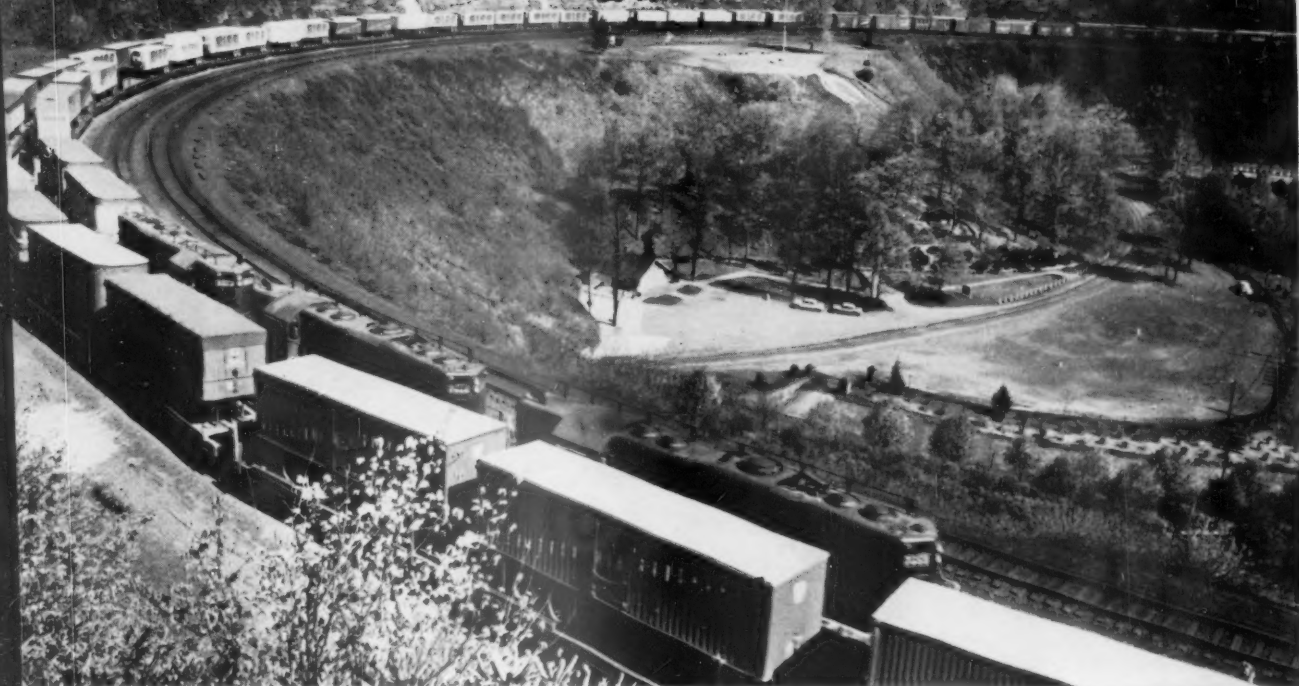
Purchasing presents special problems at fledgling companies. Perhaps the biggest is planning for the development of the department as the company expands. Here's how one P.A. tackles this job.



The lobby phone serves as the receptionist. Here a salesman checks in with purchasing while another waits his turn.



MSI's purchasing agent Jim Kershner has a purchasing program designed to expand as his fast-moving company expands.



What's Up With Piggyback?

A rundown on the various types of trailer-on-flat-car freight service that are available, including a new plan designed for the less-than-carload shipper.

By Tom Dillon,
Associate Editor

ARE YOU confused by all the "piggyback" or trailer-on-flat-car (TOFC) plans that have been developed in recent years? Purchasing and traffic managers have been hard put to keep up with the several variations on the basic service that are now available.

The handy guide that follows shows the differences and advantages of the various piggyback plans designated I, II, III, etc., by the carriers. A brief description of each plan follows:

Plan I is merely the use of TOFC service by the motor carrier industry. It is a substitution of rail service for motor carrier service at the discretion of the motor carrier. The motor carrier is the railroad's customer.

Plan II is a complete railroad service, with railroad operated vehicles making the pickup and delivery.

Plan III involves the use of the shipper's own or leased equipment in pickup and delivery service, with the railroad performing line haul service only, hauling the shipper's trailer on the railroad's flat car.

Plan IV is similar to Plan III with the one exception that the shipper owns or leases both the trailer and the flat car used.

Plan V is a joint effort by both the motor carrier and the railroad to perform interline service. This enables both carriers, by working together, to serve customers beyond their normal oper-

ating territory.

Plan VI, the newest plan, is an attempt to extend the advantages of TOFC service to the less-than-carload shipper. Usually, smaller vans are used, with reduced minimum weight requirements. The advantages to the railroad is that Plan VI permits more efficient handling of less than carload freight, since it avoids expensive "across the dock" handling and rehandling coincident with less than carload shipments.

Each year has seen dramatic increases in the use of TOFC service. In 1960, Plan II was the most popular, followed by Plan I, Plan III, Plan IV, Plan V and Plan VI. Transportation experts predict that Plan III will prob-

ably be the most popular in future years.

The user of piggyback service should also be familiar with the piggyback methods and equipment. In the days of the circus train, the ancestor of today's piggyback train, a rigid tie-down system was used to secure the trailers to the flatcars. Succeeding piggyback methods have been focused on the improvement of this basic function.

The rigid tie-down method employed jacks and chains and standard flat cars. It took much time and manpower to load, secure and unload the units. From four to six men were needed, taking up to 20 minutes to process a unit. Further, there was little provision for shock absorption, and damage to the load was not unusual.

In the early 1950's a French-

man named Deodat Clejan advocated the use of a new type rail flat car, similar to one that had been used successfully on French railroads. The New Haven Railroad experimented with these cars, and in 1955 put the system into effect.

The Clejan system, referred to as a mobile system because it permitted the trailers to "roll with the shock" and avoid damage, involved attaching small flanged wheels to the trailer bed and rolling the trailer along a center sill or track. Because the track is raised, the trailer fits down into the car, offering a lower profile. The trailer wheels hang free while the load is supported on the center sill. Since the unit is on wheels, a certain amount of shock absorption is achieved. With the original Clejan flat car, since modified,

loading and unloading took only one third the time needed with the rigid tie down system. Even more important, a tractor driver and one man could perform the loading and unloading.

Turntable Aids Loading

Up to this point, both the rigid tie-down system and the mobile tie-down system made use of end loading and unloading. Each unit was placed consecutively. In 1958 the New York Central pioneered the "Flexi-van" system, the basis of which is a flat car with a turntable. It is no longer necessary to load from the end of a line of flat cars. Also, the Flexi-van system leaves the trailer wheels at home. In flat car loading the trailer body, or container, slides off its detachable wheels onto the flat car turntable. At destination, another set of wheels is mounted. With Flexi-van's side loading, trailers or containers are more accessible. One man can load and unload.

Another stage in piggyback equipment evolution is the G85 piggyback car developed by the General American Transportation Corporation. Known for its versatility, this car can be used to carry trailers, containers, auto carriers, tanks, furniture vans, or combinations of such units, without modification. Because of its automatic tie-down arrangement, which permits the tractor driver to secure the unit without leaving the cab of his tractor, it is claimed this car is faster to load and unload than any other. Since one man can perform the loading and unloading it saves on manpower.

Since the line-haul costs of different types of piggyback cars are about the same, transportation industry has turned to loading, tie-down, and unloading as the most fertile areas for cost reductions and service improvements.

Both transportation users and suppliers are enthusiastic about piggyback service. In 1960, it provided one of the few bright spots in a discouraging railroad year. Piggyback traffic went up 33% over 1959. The railroads hauled 554,000 carloads of piggyback traffic in 1960—a dramatic increase over the 168,000 carloads handled in 1955.

► END



Checklist for Piggyback Plans

	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>
Trailer Is Owned by:						
Customer			X	X		
Motor Carrier	X				X or X	
Railroad		X				X
Flatcar Is Owned by:						
Customer				X		
Railroad	X	X	X		X	X
Pickup and Delivery Service Is Performed by:						
Customer			X	X		
Motor Carrier	X				X or X	
Railroad		X				X
Basis of Rates Is:						
Flat Charge Per Car			X	X		
Motor Carrier Tariff	X					
Rail Tariff		X				X
Joint Motor Carrier/Rail Tariff					X	
Customer Is Billed by:						
Motor Carrier	X				X or X	
Railroad		X	X	X		X

Management Backing Boosts Purchasing

- **How Gyrodyne Co. started a purchasing department**
- **How purchasing handles government contracts**

By John Van de Water,
Technical Editor

TWO YEARS ago there was no purchasing department at the Gyrodyne Co. of America, St. James, N. Y. Gyrodyne was strictly a research organization with engineers doing all the buying. Today, the company is in production, and eight buyers and six girls are turning out up to 300 orders a month.

The smoothness with which an operating purchasing department was started and the important role purchasing is now playing in the company are a tribute to management's farsightedness. By recognizing the importance of purchasing and by helping to establish the right climate, management has helped make pur-

chasing a vital force at Gyrodyne.

Tipoff on the way management views purchasing is this excerpt from the company's standard practices manual which devotes 18 pages to purchasing policies and procedures:

"Purchasing should not be considered as only a service element. When properly operating it becomes an income producer. The effectiveness of its operations and personnel can have a substantial effect on the cost of the end product and thereby on the profit and loss of the company."

The manual section further stresses the importance of giving purchasing sole responsibility for procurement:

"Dictation of choice of source by personnel outside the purchasing department is possible only when such choice is an absolute essential of product design, and only after the assent of the purchasing department."

In the same way the manual makes clear that discussion with vendors by persons outside purchasing is to be limited to technical details. Any agreements that may affect existing or future commitments must be reported to purchasing.

Gyrodyne's is a somewhat unique organization in that its only customer is the Navy (it manufactures helicopters and drones). In some ways this makes purchasing easier, in other ways it becomes more complex. Buying for defense projects means that purchasing has to meet these important Navy rules: each purchase has to be supported by an affidavit justifying the price paid and has to be approved by the local Navy contracting officer; purchases for product components require at least three bids; classified assemblies must be bought only from vendors who have passed security clearance.

To handle these requirements conveniently Gyrodyne has developed simple purchasing procedures based on flexible order and inquiry forms. Largely responsible for setting these up is Val Kiefer, director of purchases



Starting from nothing, Gyrodyne's purchasing department has in two years grown into a seven-man group that writes 300 purchase orders a month.

Gyrodyne
CORPORATION OF CALIFORNIA, INC.
ST. JAMES, LONG ISLAND, NEW YORK
Phone 4-5400

PURCHASE ORDER NO. _____
DATE _____
PRIORITY RATING _____ DMS CERTIFIED
YOUR QUOTE _____
GOVT CONTRACT NO. _____
APPROPRIATION NO. _____
CHARGE ACCOUNT NO. _____
REQUISITION NO. _____

TERMS _____ F.O.B. _____ DELIVER TO _____
SHIP VIA _____

CERTIFICATION REQUIRED
SUBJECT TO GOVERNMENT INSPECTION AND ACCEPTANCE AT DESTINATION
THE GENERAL SPECIFICATIONS FOR INSPECTION OF MATERIAL AS ISSUED BY THE U.S. N.

ITEM	QUANTITY	DESCRIPTION

PLEASE SIGN AND RETURN THE ATTACHED ACKNOWLEDGMENT COPY IMMEDIATELY.

Please supply the foregoing subject to conditions set forth hereon and on the reverse side or shipment of any supplies ordered hereon constitutes acceptance of the terms and conditions hereof as the only conditions applying to this purchase unless other conditions are approved by the undersigned representative.

For information on this order contact: _____

SHIPPING AND BILLING INSTRUCTIONS

1. Mark all shipments with original vendor's name and address. GYRODYNE CORP.
2. Packing slip must accompany each shipment.
3. State, Local, or Federal Excise Taxes, if any, must be set forth separately on invoice.
4. Invoices must be presented in triplicate. (OVER)

USA PG 41043

Gyrodyne's purchase order (above) combines a ditto master with five regular carbon copies. This makes it possible to turn out any number of extra copies at a moment's notice yet allows the use of appropriate clauses on regular copies. Original and acknowledgment are backed up with terms and conditions; receiving and accounting copies have spaces for receiving and payment entries; two Navy copies have price justification on reverse side (right).

PRICE JUSTIFICATION

1. Award To: Small <input type="checkbox"/> Large <input type="checkbox"/> Total Price _____	2. Bidder: Small <input type="checkbox"/> Large <input type="checkbox"/> Total Price _____	3. Bidder: Small <input type="checkbox"/> Large <input type="checkbox"/> Total Price _____
4. A. Was Small Business Considered? Yes <input type="checkbox"/> No <input type="checkbox"/> Bids Invited <input type="checkbox"/> B. If "No" Explain: _____		
5. Less Than 3 Bidders Because: A. Follow-On <input type="checkbox"/> E. Per G.P.L. <input type="checkbox"/> B. Tooling At This Source <input type="checkbox"/> F. Called Out By GCA <input type="checkbox"/> C. Catalog Item <input type="checkbox"/> DWG. No. <input type="checkbox"/> D. Product Designed By GCA and Vendor <input type="checkbox"/> G. Proprietary <input type="checkbox"/> H. Specified By Requisitioner <input type="checkbox"/>		
6. For Single-Bid Follow-On, Complete A, B, C. A. Compared with Prior Purchase Price Is: Increased <input type="checkbox"/> Decreased <input type="checkbox"/> Same <input type="checkbox"/> B. Was Prior Purchase Competitive: Yes <input type="checkbox"/> No <input type="checkbox"/> Awarded to Low Bidder: Yes <input type="checkbox"/> No <input type="checkbox"/> C. List Prior P.O. Number, Quantities, Prices: _____		
7. Cost Breakdown Requested: Yes <input type="checkbox"/> No <input type="checkbox"/> Received? Yes <input type="checkbox"/> No <input type="checkbox"/> Refused? Yes <input type="checkbox"/> No <input type="checkbox"/>		
8. Gov't Audit Requested? Yes <input type="checkbox"/> No <input type="checkbox"/> Report Received? Yes <input type="checkbox"/> No <input type="checkbox"/>		
9. Has Price Analysis Section Reviewed This Award? Yes <input type="checkbox"/> No <input type="checkbox"/> Is Report Attached? Yes <input type="checkbox"/> No <input type="checkbox"/>		
10. Total Price Is Deemed Reasonable Because: A. Competitive Bids <input type="checkbox"/> D. GCA Price Analysis <input type="checkbox"/> B. Published Price List <input type="checkbox"/> E. Negotiated—Cost and Profit <input type="checkbox"/> C. Follow-On (See No. 6 Above) <input type="checkbox"/> F. Explained in No. 11 Below <input type="checkbox"/>		
11. Explanatory Notes: 		
12. Advance Notice to BWR Required? Yes <input type="checkbox"/> No <input type="checkbox"/> Acknowledged: Yes <input type="checkbox"/> No <input type="checkbox"/>		
13. "Approved as To Necessity" Contracting Officer Bureau Of Naval Weapons	14. <input type="checkbox"/> Reviewed <input type="checkbox"/> Approved On the basis of available information, subject to further investigation and review by government audit agencies, as to the reasonableness of price. BWR, Bethesda, N. Y. Per _____	15. I hereby certify that the materials, articles or services ordered herein are necessary in kind and quality, that they conform to applicable specifications, and that the quantities are reasonable and conform to the regulations and requirements of the defense materials system. Director of Procurement

for the growing company. As assistant to the president, Kiefer also has under his wing such diverse functions as production planning, tool design, and cost estimating.

Gyrodyne's purchase order is a seven-part form that produces an original, a ditto master, and five carbon copies simultaneously. Combining the two copying methods makes it possible to turn out any number of extra copies that may be required and yet have regular copies that need individually printed clauses or instructions. The Gyrodyne form includes original and acknowledgment vendor copies that are complete with terms and conditions, receiving and accounting copies with boxes to post receipts and invoices, and two Navy copies are backed up with the price justification affidavit.

Extra copies may be needed, for instance, when the Navy is called in to make source inspection or assist in expediting deliveries. In addition, purchasing regularly makes a ditto copy for expediting purposes. This is filed by vendor. Clerks regularly close out completed orders from receiving reports, while buyers check the vendor file each week for orders that are overdue.

Meets Gov't. Regulations

An equally convenient four-page inquiry form enables the company to comply with government requirements calling for three bids. With this form it's possible to type identical inquiries to three bidders at one time, while simultaneously providing purchasing with a single file copy showing all three bidders.

For a company involved in

making novel and complex equipment, three bids are not always enough. "In our business," says Kiefer, "most shelf items just won't do." Except for a few simple fasteners and bearings most parts and components are made to Gyrodyne's specifications. This puts a particular burden on purchasing in finding suppliers.

"What usually happens," explains Kiefer, "is that engineering finds a few sources while working on a new component. When they finish preliminary work, we take over and supplement any vendor recommended by them with as many other likely sources as we can find."

This is not always an easy job, but Gyrodyne purchasing, even though still a relative infant is performing in such a way that it has won the respect of everyone in the company. ► END

Forms Forum

THERE'S MORE to mechanizing purchasing than just getting equipment. In many cases—especially where purchasing is performed on a partly automatic, partly manual basis—the forms that are used become extremely important.

Richard G. Krisch, director of purchases, Binks Manufacturing

Co., Chicago, realized this and has developed an extremely effective set of forms designed to get the most out of his partially automated purchasing operations.

His purchase order is an example of good form design. It's a combination p.o. and receiving report made up in an eight-part snap-out form (four parts are the

purchase order section, the last four, the receiving report section). One copy of the purchase order is sent to the tabulating department where a punched card is made up. From this, Krisch can get the following information:

Total purchases for selected commodities

Total purchases from each vendor

Total purchases by plants

List of orders due during following month

Commitments outstanding at end of each month

Daily reports showing total amounts purchased that day.

In addition to the purchase order some of the other forms used at Binks are illustrated and described on these pages, ► END

COPY: R. KRISCH
D. WOODWARD
R. KRISCH
RECEIVING

VENDOR SCHEDULE

VENDOR _____ DATE _____

FORM NO.	DESTINATION				
B-101	CHICAGO				
B-105	CHICAGO				
B-106	DIRECT				
B-108	CHICAGO				
B-109	DIRECT				
B-107	CHICAGO				
B-107	DIRECT				
B-109	CHICAGO				
B-110	CHICAGO				
B-110	DIRECT				
B-102	CHICAGO				
B-105	CHICAGO				
B-105	CHICAGO				
B-105	DIRECT				
B-110	CHICAGO				
B-110	CHICAGO				
B-110	CHICAGO				
B-117	CHICAGO				
B-117	DIRECT				
B-117	CHICAGO				
B-117	DIRECT				
B-117	CHICAGO				
B-117	DIRECT				
B-117	CHICAGO				
B-117	DIRECT				
B-117	CHICAGO				

CHICAGO SHIPMENTS SHOULD BE SHIPPED AS SOON AS POSSIBLE DURING THE FIRST WEEK OF THE MONTH SPECIFIED. DIRECT SHIPMENTS ARE TO BE MADE UP AND AVAILABLE BY THE FIRST WEEK OF THE MONTH SPECIFIED BUT ARE NOT TO BE SHIPPED UNTIL ACTUAL RELEASES ARE RECEIVED FROM US.

Binks MANUFACTURING COMPANY / 3114 40 W. CARROLL AVENUE, CHICAGO 12 / TOLL FREE 8-4390

F. PATENTED / BINKS IS OWNED BY AN AMERICAN FIRM

NEWLY RECOMMENDED VIA RETURN MAIL

Gentlemen:

Kindly refer to our Purchase Order (s) listed below and return this form immediately via RETURN MAIL, showing best delivery promise.

ORDER NUMBER	DATE	SUPPLIER	QUANTITY	REMARKS

The above applies only to portions of orders due on the above dates. We request every effort be made to better our requested shipping dates except for those scheduled for shipment early in the month. Under no condition should shipment be made prior to the first of the month specified.

Thanking you for your immediate attention to this matter, and anticipating a prompt reply, I remain

Yours very truly,
Binks Manufacturing Company.
Purchasing Department.

Special Delivery Scheduling—Binks Manufacturing uses this form for purchases which require considerable lead time. A blanket order is issued to cover the purchase and a four month delivery schedule is sent to vendors on the first of each month. In this way, the supplier has adequate lead time and a forecast for the next 90 days.

Tabulating department at Binks Mfg. Co. sends a sheet to purchasing showing all orders due for delivery the following month. The letter shown here is filled in from this data and mailed to all vendors on the list. A carbon, typed on plain yellow paper, is kept by the purchasing department. Promised dates are noted on the yellow sheet. When the vendor returns the letter it is forwarded to the production department. After the order is filled, the yellow carbon is destroyed.

Repeating Purchase Requisition—After inventory, items that have dropped below the review point are automatically "thrown out" by the tabulating equipment. The punch card is sent to production to be checked for possible reordering. When reorder is warranted, the repeat purchase requisition (shown here) is pulled from the file and sent to purchasing. Notice the vendor section in upper right hand portion of form that states, "To be filled in only by purchasing department."

[illegible][illegible]

EVERYTHING FOR SPRAY PAINTING

COOLING TOWERS AND INDUSTRIAL SPRAY NOZZLES

PURCHASE ORDER

Binks Manufacturing Company
3114-44 W. CARROLL AVENUE
CHICAGO 12, ILLINOIS

Telephone VAN Buren 6-4286

No. 18691

The above number and vendors order number must appear on all invoices, packing slips, check correspondence, etc.

DELIVER TO PLANT BAR

☐ 3114-44 W. Carroll Ave.
Chicago 12, Illinois
☐ 6001 W. Belmont Ave.
Franklin Park, Illinois

☐

DISTRICT

This is two copies for shipment will be made. On the headed "Binks" complete, file sent by the amount on the shipment in 15. All not used to receive

DATE	COMMENTS	T O R POINT	SHIP VIA	TERMS
FOR DEPARTMENT	PRODUCTION ORDER NO.		REFERENCE NUMBER	AGENCY
BUYER			SUBJECT TO STATE SALES OR USE TAX	

QUANTITY

DESCRIPTION

NOTE

FOR INFORMATION

BUYER

RECEIVED

THIS ORDER IS SUBJECT TO CONDITIONS ON REVERSE SIDE

IF THIS ORDER IS UNPRICED OR INCORRECT AS TO PRICE, DISCOUNT TERMS, ETC., PLEASE NOTE THE CHANGE ON THE ACKNOWLEDGMENT TO REFLECT YOUR INTENDED BILLING.

ACKNOWLEDGMENT COPY ATTACHED — MUST BE FILLED IN AND RETURNED AT ONCE. DEFINITE DELIVERY DATE MUST BE GIVEN.

Mail Invoices to Shippers to

3114-44 WEST CARROLL AVENUE
CHICAGO 12, ILLINOIS

DIRECT ALL CORRESPONDENCE RELATIVE BUYER DESIGNATED ABOVE.

Binks Manufacturing

By

FORM 60-51

ORDER PREPARED

RECEIVING REPORT — MATERIAL IDENTIFICATION				No. 18691		
INSTRUCTIONS: This first part form provides for two shipments, two copies for the first partial shipment and two copies for the final shipment. Any partial shipments received in addition to the first and final shipment will be recorded on hand written reports. On the first shipment, use the first two copies and record the quantity received in the columns headed "Received". On orders completed in one shipment, destroy the two extra copies, and if not complete, file the remaining two copies in the Receiving Department file and reduce the amount ordered by the amount received on all partial shipments. The file copy will always show the exact amount on back order. When the final shipment is received, record the amount received on the final shipment in the columns headed "Received". All receiving reports should be filled out completely and signed by the person or persons authorized to receive shipments for the Buick Manufacturing Company.						
				DELIVER TO PLANT MARKED X		
				<input type="checkbox"/> 3754-66 St. Cassill Ave., Chicago 12, Illinois	<input type="checkbox"/> As Specified	
				<input type="checkbox"/> 500 N. Dearborn Ave., Franklin Park, Illinois		
DATE _____	DESCRIPTION _____	P & H Plant _____	Plant No. _____	Lot No. _____		
BUYER			SUBJECT TO STATE SALES OR USE TAX			
			YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>			
RECEIVED QUANTITY			DISCREPANCY			
PREPARED BY			CHECKED			
DATE			DATE			
TIME			TIME			
INITIALS			INITIALS			
REMARKS			REMARKS			
APPROVED BY			APPROVED BY			

Combination purchase order-receiving report used by Binks Mfg. Co., is an eight-part snap-out form with four parts for each section. All parts are identical except for the bottom portion of the copies for the receiving report which has space for recording delivery information.

When Are Penalty Clauses Valid?

The courts will not enforce a penalty conceived merely as punishment for poor performance. To be upheld, damages demanded must be reasonable estimates of actual costs.

by Lyle E. Treadway

SHOULD purchasing agents use penalty clauses in purchase order forms and contracts? If so, can a uniform penalty provision be printed in the order form providing a penalty for delay in shipment of \$5, \$10, or \$100 per days, or a certain percentage of the price of the goods ordered?

There are undoubtedly many times when professional buyers would like to have this kind of "whip" over the supplier to ob-

tain better performance. But even if the purchasing agent can find suppliers willing to accept this kind of order, he will find that the law gives it no blanket encouragement or support.

This does not mean that purchasers should never use special provisions setting damages for the suppliers' failure to fill the order or contract. This may sometimes be highly desirable, especially in governmental purchasing. But the professional buyer needs to know the rules within which he must operate in accomplishing this purpose.

It can be said categorically that

a uniform penalty clause printed in the purchase order is virtually impossible to draft or enforce. Such provisions must be tailored to the particular situation and individually negotiated with suppliers. A clause appropriate for a building contract might be entirely out of order for the purchase of steel or maintenance supplies.

Penalty clauses have a long history. In the sixteenth and seventeenth centuries "penal bonds" were commonly used, especially to secure the repayment of money. By their terms, these bonds clearly obligated the borrower either to pay as agreed, or to forfeit money or property out of all proportion to the sum borrowed.

The provisions of bonds were often harsh and unconscionable, written to take advantage of the adversity of the borrower and secure repayment through terror. The classic illustration of penal bonds is the "pound of flesh" in Shakespeare's *Merchant of Venice*. Many generations of audiences have rejoiced when the penalty is avoided by a clever decision upholding the bond but demanding of the lender "Shed thou no blood."

As in this famous bit of literature, courts have sought ways and means of avoiding strict enforcement of unreasonable penalty clauses. As early as the reign of Henry VII, the Lord Chief Justice declared against penal bonds and urged that harsh and unreasonable provisions should not be enforced by the English courts.

A graduate lawyer, Mr. Treadway is purchasing agent for the Federal Glass Company and a former vice president of the National Association of Purchasing Agents.

"YOU DIDN'T DELIVER THE PAIL ON TIME. I'LL COLLECT MILLIONS."

"THE SHIP'S NOT WORTH THAT MUCH AND YOU WON'T BE AROUND TO COLLECT ANYWAY."



A penalty clause will be enforced only if it is a genuine estimate of actual damages resulting from failure to perform.

When and How to Use Penalty Clauses

- (1) Penalty clauses should be used only where the nature and urgency of the individual purchase indicates a need for this type of protection. When used, such provisions should be referred to as "liquidated damages."
- (2) A penalty clause will be enforced only if it is a genuine pre-estimate of actual damages resulting from failure to perform. The pre-determined amount must be reasonable.
- (3) Liquidated damages, based on a sum fixed in advance, can only be recovered when actual damages resulting from breach are uncertain or difficult to ascertain. A penalty clause should not be attempted if actual damages can be easily determined.
- (4) Purchasing agents of governmental units, in practice, have greater latitude in the use of liquidated damage provisions. But, even in government contracts, the damages fixed in advance must not be highly unreasonable in relation to foreseeable loss.

The outcome of this effort to mitigate the evils of penal bonds has been the development of a rule that parties, by their own agreement, cannot provide for payment of penalties or damages having no unreasonable relationship to the actual loss or damage. Several states have enacted statutes outlawing penalties. In the adoption and application of this principle, the law makes a distinction between **liquidated damages** and **penalties**. The rule is now universal that penalties are unenforceable and void, but liquidated damages are valid and will be recognized by the courts. The professional buyer should understand the legal meaning of these terms and how they apply to the damage provisions of purchase orders and contracts.

McCormick on Damages explains this important distinction as follows: "If it is determined that the amount was fixed in good faith as an estimate by the parties of the probable injury to be suffered from a breach, then it will be denominated 'liquidated damages' and the agreement will be enforced; but if the court finds that it was not such a pre-estimate, but was fixed merely as a deterrent to prevent a breach, it will be termed a 'penalty' and the agreement will not be enforced."

The principle is now well estab-

lished that provisions for payment of a specific amount as damages will only be enforced if the amounts are based on anticipated actual loss and are not merely punishment for failure to fill the order or perform the contract. This is a rule which purchasing agents should keep firmly in mind. It means that the party seeking to enforce the stipulated amount of damages must be prepared to show that it was a valid estimate and not just a deterrent to breach.

Because of the rule just cited, legal draftsmen have carefully avoided use of the word **penalty** in preparing sales or purchase agreements. Whenever a specific amount is provided for failure to perform, this amount is designated as **liquidated damages**. But many decisions have pointed out that the language itself is not controlling. The validity of the damage provisions will depend on whether it was a pre-estimate of damages determined in good faith, or was a disguised penalty having no reasonable relationship to foreseeable losses.

The validity of a provision for payment of specific sums as damages must be determined in the light of surrounding circumstances. For example, a court refused to enforce as a penalty a provision in a building contract calling for payment of \$200 per week for delay in the completion

of an apartment which was to rent for less than \$100 per month. This was condemned as a "penalty." However, it was pointed out that a provision of this nature having reasonable relation to the loss would be valid. This does not mean that the liquidated damages in this case would be strictly limited to \$100 per month, but the agreement, to be valid, should have a closer relationship to actual losses.

Several important cases on this subject have pointed out that the validity of a stipulation of damages is to be "judged as of the time of the making of the contract, not as at the time of the breach." The test of whether a particular provision is a penalty must be made in the light of circumstances existing when the order was placed or the contract made, not at the time when a question is raised by failure to fulfill the contract.

Numerous cases can be cited as authority for the general proposition that recovery is limited to actual damages sustained in spite of any provisions in the contract or order to the contrary. It can safely be said, however, that this is a broad principle to which many courts have paid lip service without giving it strict application to actual case situations. In practice, the courts have upheld liquidated damage clauses which bear reasonable relationship to the damage sustained, even though a more accurate determination could have been made *after* the breach occurred.

Reasonable Claims Upheld

In a leading case the U. S. Supreme Court held that "... contracts for liquidated damages when reasonable in their character are not to be regarded as penalties and may be enforced between the parties. But agreements to pay fixed sums plainly without reasonable relation to any probable damage which may follow a breach will not be enforced."

Suppose that the liquidated damages named in the agreement prove to be well below the loss sustained. The cases are not all in agreement on this question, but

the preponderant view seems to be that the stipulation of a sum as damages limits recovery to that amount. Contrary cases take the logical position that actual damages should be enforced, whether above or below the amount provided in the liquidated damage clause.

Here's Another Hurdle

In considering the use of liquidated damage clauses, the purchasing agent should know that in addition to the test of reasonableness, another legal hurdle must be met. In the determined effort to discourage the use of penalties, the law has set up another test of validity: that actual damages must be uncertain or difficult of determination. The rule has direct application to materials or commodities which have a recognized or easily available market price. Here the courts rely on the rule that the measure of damages is the difference between the market price at time of breach and the agreed price. Liquidated damage clauses establishing some other measure of damages in this situation are not favored.

Some legal scholars have observed that the rule requiring that damages be uncertain and difficult to ascertain, is seldom

made the basis of decision. It is, however, often used to justify a finding that liquidated damages are valid, especially in government contracts.

The American Law Institute's *Restatement of the Law of Contracts*, in Section 339, sets forth an excellent short statement of the law on this subject: "An agreement, made in advance of breach, fixing the damages therefor, is not enforceable as a contract and does not effect the damages recoverable for the breach, unless (a) the amount so fixed is a reasonable forecast of just compensation for the harm that is caused by the breach, and (b) the harm that is caused by the breach is one that is incapable or very difficult of accurate estimation."

In private use, liquidated damage clauses are probably most common in construction contracts in which a stipulated charge per day or per week is agreed upon if construction is not completed by a specified date. If the provision is not unreasonable, such agreements have generally been upheld.

The definition of "unreasonable" has often proved difficult. It was held in a New York case that forfeiture of the entire retention money in a building contract (usually 10 or 15%) because of

late completion was harsh and arbitrary and unenforceable as a penalty. On the other hand, courts have often upheld daily damage amounts that seem high in relation to the total contract.

In this type of contract, and even in orders for machinery or equipment, the law is clear that any interference by the buyer or requests for modifications or auditions will invalidate liquidated damage clauses based on a completion date, unless provided for in advance. Also, if the contract is totally abandoned by the supplier, and not merely delayed, liquidated damages do not apply. Relief is then limited to damages for breach of contract.

Not For Private Purchasing

Aside from construction contracts, liquidated damage clauses have little use in private purchasing with the possible exception of major capital procurement which, of course, is closely related to construction and expansion of manufacturing facilities.

In governmental and institutional purchasing the use of liquidated damage clauses has enjoyed much greater favor than in private transactions. This is true despite the fact that courts have long held to the theory that in buying and selling, governmental agencies are on the same footing as private organizations. It is still the law that, as stated by the Supreme Court in a leading case, "provisions in contracts with the Government which provide for a penalty to the Government are invalid as well as such provisions in other contracts."

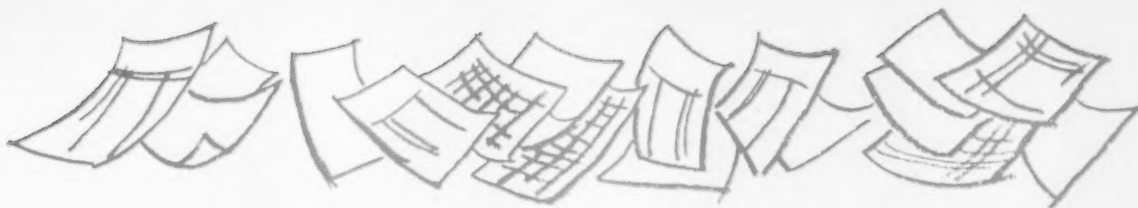
The test of reasonableness, described above, will be applied to public purchases to determine whether clauses fixing specific damages are, in fact, valid liquidated damages or a "penalty" which is unenforceable. But, in practice, there is a very important difference.

In a preface to the latest edition of *Navy Contract Law*, F. Trowbridge Vom Baur, general counsel for the Navy department, makes the significant observation that "in 1875, the Supreme Court stated that if the federal government

(Please turn to page 202)



"Tear up our contract, we just bought your company."



Copier Saves Purchasing \$2000 a Year

AN INVESTMENT of \$148 in an office machine has saved the American Export Lines' department \$2000 in one year. New uses are expected to boost this annual cost reduction throughout the life of the machine.

The department, headed by Purchasing Agent Frederic W. Schneider, processes requisitions from 29 ships, domestic divisions, and branch offices. "To do this efficiently, we had to eliminate time-consuming clerical jobs," according to Schneider. "We've done it by using a Verifax copier."

"Before we installed the copier, he had to rely on carbon copies.

They had to be checked and rechecked. Despite all this checking, we still ran the risk of making errors. In addition, we had to make sure the carbons were readable.

For the company's \$36 million rebuilding program, purchasing developed a special purchase order form headed "new construction." It is used to order all the equipment and material for a new ship. Preparation of this purchase order put quite a work-load on the department prior to the time the copying machine was put in.

Thirty copies of every purchase order are required for each trans-

action. Twenty-four of them go to 13 different agencies, one is retained for purchasing's files, and five are used in planning future programs.

With the old method of preparing the "new construction" order the p. o. had to be typed twice—15 copies at a time. After being typed, they had to be checked for accuracy. Although the forms were clean and legible when they left the department, they frequently became messy and unclear by the time they reached their destination.

"With the photo-exact copies we now use, there is no longer any chance for error," says Schneider. "We get good, clear copies and the job has been greatly simplified."

Cuts Typing

Another area where the new copying system has been effective is on "quantity lists." These lists are sent to potential vendors so that they can bid on items for the ships, including silverware, tools, linens, glassware.

Previously when the bids had been received from the vendors and the contract was awarded, a typist would have to transfer the same information from the "quantity list" to the "new construction" purchase order. This involved two separate typings of identical data.

By using the new copying system, typing of this repetitive data is eliminated. One of the five pur-

(Please turn to page 204)

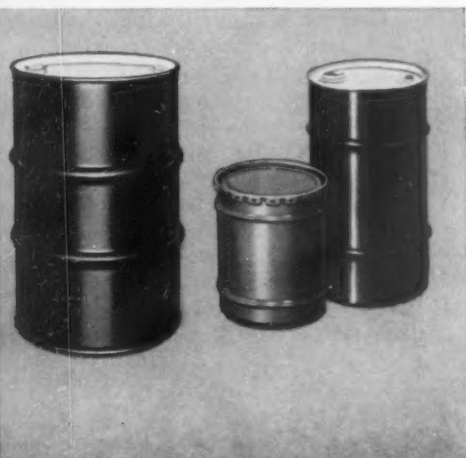


AMERICAN EXPORT'S P. A. Frederic W. Schneider (l.) and his assistant, J. V. Janssen, have cut purchasing costs and speeded paperwork markedly by using a Verifax copier.



Republic's controlled atmosphere bright annealing furnace provides a smooth surface finish, eliminating the normal surface roughness of conventional open annealing and pickling.

REPUBLIC STEEL DRUMS AND PACKAGES—complete service in 20- to 55-gallon drums including Light Gage Class I.C.C.—17E, 17H, 17C, 6J; Heavy Gage Class I.C.C.—5, 5A, 5B, 5C, 17F, and certain I.C.C. 6 Series. Choice of plain, decorated, hot dip galvanized, hot dip tinned, lacquer lined, or in ENDURO® Stainless Steel. A full line of steel packages in 3½" to 20-gallon capacities—26- to 20-gage plain steel—lined and decorated to specifications. Write for complete data.



SIZE AND GAGE RANGE

TUBING				PIPE				
Outside Diameter of Tube	Wall Thickness BWG	Outside Diameter of Tube	Wall Thickness BWG	Pipe Size	Outside Diameter	Schedule 40S Wall	Schedule 10S Wall	Schedule 5S Wall
¼"	16-25	1⅞"	10-20	⅜"	.405"	.068"	.049"	
⅜"	16-25	1⅝"	10-20	¼"	.540"	.088"	.065"	
½"	16-25	1⅞"	10-20	⅜"	.675"	.091"	.065"	
⅝"	14-25	1¾"	10-20	½"	.840"	.109"	.083"	.065"
¾"	14-25	1⅞"	10-20	¾"	1.050"	.113"	.083"	.065"
⅞"	14-24	2"	9-20	1"	1.315"	.133"	.109"	.065"
1⅞"	14-24	2⅞"	9-20	1¼"	1.660"	.140"	.109"	.065"
¾"	13-24	2¼"	9-20	1½"	1.900"	.145"	.109"	.065"
1⅞"	13-24	2⅞"	8-20	2"	2.375"	.154"	.109"	.065"
7/8"	12-23	2½"	8-20	2½"	2.875"		.120"	.083"
1⅞"	12-23	2⅞"	8-20	3"	3.500"		.120"	.083"
1"	11-23	2¾"	8-20	3½"	4.000"		.120"	.083"
1⅞"	11-22	2⅞"	8-20	4"	4.500"		.120"	.083"
1⅞"	11-22	3"	8-20	NOTE: These are common sizes. Intermediate sizes can be made. Inquiries for larger diameters and heavier walls should be referred to your Steel and Tubes Division representative.				
1⅞"	11-22	3¼"	8-16					
1¼"	11-22	3½"	8-16					
1⅞"	11-20	3¾"	8-16					
1⅞"	11-20	4"	8-16					
1⅞"	11-20	4½"	8-16					
1½"	10-20	5"	8-16					

ELECTRUNITE Stainless Steel Tubing and Pipe are available in A.I.S.I. chrome-nickel analyses. Size range from ⅜" O.D. through 5" O.D. Pipe sizes are available from ⅜" I.P.S. through 4" I.P.S. in ASA schedule 40S; from ⅜" I.P.S. through 4" I.P.S. in schedule 10S; and from ½" I.P.S. through 4" I.P.S. in schedule 5S wall thicknesses. Write for additional information.

ELECTRUNITE

STAINLESS STEEL TUBING AND PIPE

...in tune with today!

Supplying industry's need for quality stainless steel tubing and pipe has become a job for specialists. A job for Republic's Steel and Tubes Division—producers of ELECTRUNITE.

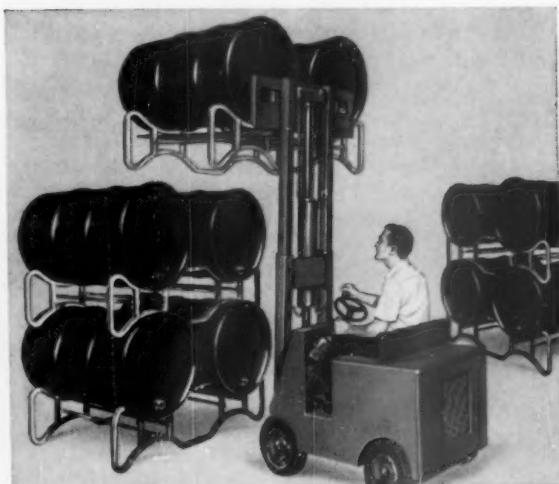
Republic offers ELECTRUNITE Stainless Steel Tubing and Pipe in a complete range of sizes, gages, wall thicknesses. Fast service, too, with the ability to meet deliveries from broad distributor stocks, and large inventories of mill stocks.

For pressure tube applications, Republic offers exclusive FARROW-TEST—the ultimate in nondestructive testing. This eddy-current test probes for and detects defects so minute they pass other, less positive tests. Tube quality is premeasured for you.

For prompt price and delivery quotations, call your Republic representative. You'll like the qualities of ELECTRUNITE Stainless Steel Tubing and Pipe. And, you'll like the service, too.



Strong, Modern, Dependable



REPUBLIC DRUM RACKS assure stacking of more in-use drums in less space and at lower costs than ever before. Each rack supports two loaded 55-gallon drums. Racks with drums can be stacked to any practical height. Standard fork-lift trucks can lift, move, and stack as many tiers of drums at one time as capacity permits. Shipped knocked down, with fasteners, for quick and easy assembly. Send coupon today.

For More Facts Write No. 202 on Information Card—Page 32



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*World's Widest Range
of Standard Steels and Steel Products*

REPUBLIC STEEL CORPORATION

DEPT. PH-1691

1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on the following products:

- ☐ Republic ELECTRUNITE® Stainless Steel Tubing
☐ FARROWTEST®—nondestructive tube testing
☐ Republic Drum Racks ☐ Republic Drums and Packages

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

Process Joins Copper Parts Without Adding Metal

A NEW technique for joining copper to copper or to certain alloys may result in cost savings, easier production methods, and improved products.

In the process which has been developed by the Chase Brass & Copper Co., two or more copper components can be joined together with a homogeneous bond as strong as or stronger than the base metal. A special coating on the metal surface diffuses into the parts to be joined that produces a bond without an interface. Joints made in this manner retain virtually all of the high electrical and thermal conductivity of copper, an advantage especially in electrical and electronic applications.

Tests on diffusion bonded joints have shown them to be markedly superior to soft soldered joints in respect to tensile, sheer, and fatigue properties. Corrosion resistance in many media is also

expected to be appreciably higher.

Use of copper strip, rod, wire, and tube coated for diffusion bonding may lead to production economies through simplification of assembly operations. The integral coating makes it unnecessary to apply the joining material by any of the conventional methods, thereby making more automated operations practical.

The new technique will also provide substantial savings in applications where costly joining materials have been used. For example, major elements of electronics equipment incorporate complex assemblies of copper which cannot be made properly with common low cost joining techniques. It is anticipated that the diffusion bonding process will be particularly useful when joints must be vacuum tight, free of high vapor pressure constituents, and capable of operating at elevated temperatures.

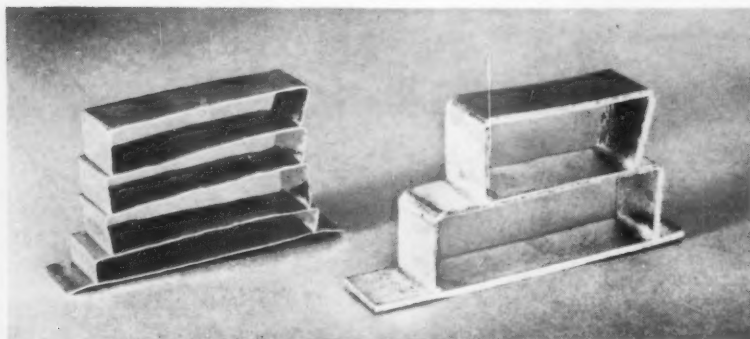
The coating can be applied to copper strip before it is rolled to finished gauge. It is also practical to coat fabricated parts. Several types of bonds can be made, including complete diffusion, braze, and combined diffusion and braze. One type may be more suitable for a specific application, but all make highly satisfactory joints.

Coated strip can be annealed in a non-oxidizing atmosphere at moderate temperatures and fabricated by many of the usual techniques—such as blanking, deep drawing, bending, or stamping to the desired shape without adversely affecting the coating. The coated metal requires only reasonable care in handling.

Fabricated and coated parts are diffusion bonded by heating at 1700-1800° F. in a hydrogen or inert atmosphere for a short period of time, ordinarily five to fifteen minutes. The carrier volatilizes during this exposure and is dissipated in the furnace atmosphere. Reasonably good contact of the mating surfaces to be joined is required.

The diffusion bonding process has been found suitable for some copper alloys, particularly those of high copper content. One such material is age hardenable phosphor bronze, which can be heat treated to a high strength level after diffusion bonding. This fact should enhance the use of this alloy in electrical hardware, for which it is now used because of its combination of high strength and electrical conductivity.

Write No. 18 on Information Card—Page 32



Diffusion bonded assemblies illustrate how parts can be joined even though only one surface has been coated. Strip surface was coated with a bonding agent, but none was applied to edges.



Purchasing Agents

Pick your form of Nickel...delivery date...time Your Inco Distributor will do the rest

You can count on your nearby Inco Distributor for "on time" delivery of the commercial forms of Inco Nickel best suited to your needs.

Your Inco Distributor understands how much your profits depend upon getting the materials you need... when you need them. That's why he's set up to supply Nickel *off the shelf*—right from his warehouse stock.

Pick your material...delivery date... time. Whatever the commercial form of Inco Nickel you need, your nearby Inco Distributor can supply you—in quantity.

Your Inco Distributor can help you beat the clock with "on time" deliv-

eries... and arrange for technical assistance that can help you solve your problems involving alloy selection. It will pay you to call him today.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street  New York 5, N. Y.

INCO NICKEL

NICKEL MAKES ALLOYS PERFORM BETTER LONGER

COMMERCIAL FORMS OF INCO NICKEL ARE DISTRIBUTED BY

PACIFIC METALS CO., LTD.—San Francisco, Los Angeles, Salt Lake City

J. M. TULL METAL & SUPPLY CO., INC.—Atlanta, Jacksonville, Birmingham, Greenville

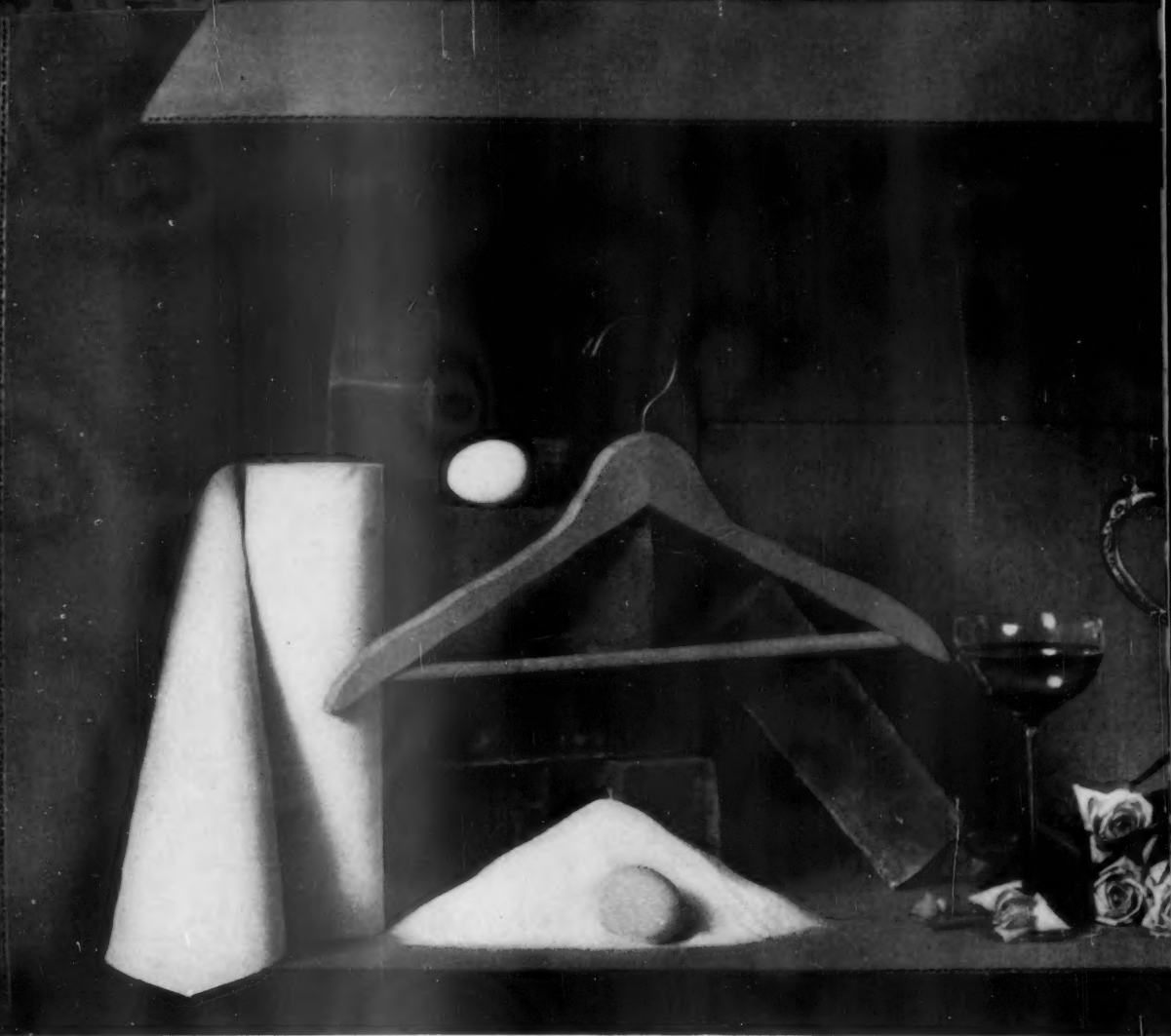
EAGLE METALS CO.—Spokane, Seattle, Portland

STEEL SALES CORPORATION—Chicago, Detroit, Milwaukee, Indianapolis, St. Louis, Minneapolis

METAL GOODS CORPORATION—Dallas, Denver, Houston, New Orleans, Tulsa, Memphis, St. Louis, Wichita, North Kansas City

WHITEHEAD METALS, INC.—New York City, Buffalo, Syracuse, Philadelphia, Baltimore, Harrison, N. J., Windsor, Conn., Cambridge, Mass.

WILLIAMS & COMPANY, INC.—Pittsburgh, Cleveland, Cincinnati, Columbus, Toledo, Louisville



PLAIN THINGS...FANCY

These widely-assorted items have one thing in common: each travels de luxe in the corrugated safety of a St. Regis® container. It's our job to know a world of different products—and to design just the right containers for shipping them.

And, if you think we have designs on your product—you're right! We make it our business to ask for new oppor-

tunities to design boxes that give your product greatest protection at lowest cost. You may need "difficult" boxes . . . boxes with special insulation . . . display shippers . . . boxes with full printing . . . boxes that weather the weather. If the box you need doesn't exist, we'll create and test it. And it will be the sturdiest, safest box your product ever traveled in.

ANYTHING GOES...IN A



THINGS...BRIGHT THINGS

You can step into this imaginative world of protective packaging at any of our nation-wide plants. Each has a staff of creative design engineers, modern production techniques, and years of experience in virtually any industry you name. Corrugated boxes for plain things, fancy things—*anything*—are designed and made at these St. Regis plants:

Birmingham, Ala. • Fullerton, Calif. • Salinas, Calif. • Jacksonville, Fla. • Atlanta, Ga. • Chicago, Ill. • Dubuque, Ia. • Hagerstown, Md. • Minneapolis, Minn. • Jersey City, N.J. • Buffalo, N.Y. • Albany, N.Y. • Canton, O. • Cleveland, O. • Coshocton, O. • Newark, O. • Crafton, Pa. • Mt. Wolf, Pa. • Pittsburgh, Pa. • Dallas, Texas • Garland, Texas • Houston, Texas • Tacoma, Wash. • Grafton, W.Va. • Milwaukee, Wis.
Or write: Container Div., St. Regis Paper Company, 150 E. 42 St., N.Y. 17, N.Y.

ST. REGIS CONTAINER

*Are you buying LAMINATED PLASTICS or VULCANIZED FIBRE...
as raw materials or fabricated parts?*

TAYLOR FIBRE CO. HAS 2 MODERN PLANTS TO SERVE YOU

**NORRISTOWN, PA.
LA VERNE, CALIF.**

and belongs as an approved supplier

Taylor has the products . . . offers more than 50 grades of standard laminates, a group of Tayloron® materials, pre-impregnated materials, molding compounds, and vulcanized fibre. Also filament windings and a number of composite materials, including sophisticated combinations of laminates, metals and rubbers.

Taylor has the facilities. Its Norristown, Pa., plant, comprising some 300,000 sq. ft., produces both vulcanized fibre and laminated plastics . . . is one of the most completely integrated in the industry . . . even makes its own paper and a large percentage of its own resins. The La Verne, Calif., plant, with over 45,000 sq. ft. of floor space, specializes in the manufacture of laminated plastics for the convenience of West Coast customers. Both plants can supply basic materials or parts fabricated from them.

Taylor has the service organization . . . maintains 13 strategically located offices staffed with men qualified to help in the selection and utilization of Taylor materials.

Write for a copy of our laminated plastics selection guide and other literature pertaining to our capabilities for producing materials and parts to your specification. Taylor Fibre Co., Norristown 36, Pa.

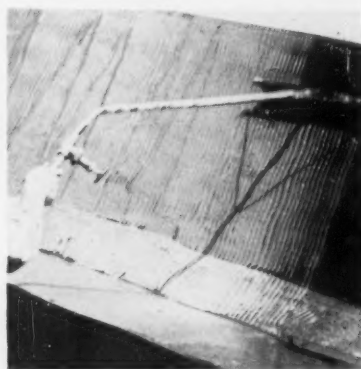
Taylor

LAMINATED PLASTICS VULCANIZED FIBRE

For More Facts Write No. 204 on Information Card—Page 32

Products

Fluid-Applied Material Weatherproofs Roofs



A fluid-applied roofing material simplifies the process of weatherproofing roofs of unusual design. Product can be specified for any type climate. Designed for curvilinear roof decks with slopes of 2 in. in 12 in. or better, lightweight roofing is also recommended for canopies, marquees, etc. Application is by air-operated, pressure-fed rollers, by hand rollers, or by conventional spraying equipment, depending on roof. Material will not soften with heat or become brittle with cold. Smooth surface permits easy detection in course of routine maintenance, and local areas may be renewed with additional material as required. **Building Products Div., Armstrong Cork Co., Lancaster, Pa.**

Write No. 20 on Information Card—Page 32

Titanium Diboride Shapes Offer Strength, Purity



Titanium diboride shapes of unprecedented strength, size and purity have been added to the field of high temperature refrac-

(Please turn to page 104)

For More Facts About Ad
on Facing Page Write in No. 205→



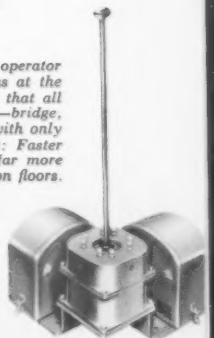
Photo Courtesy Caterpillar Tractor Co., Peoria, Illinois

FOR EVERY APPLICATION, THERE'S ONE CRANE OUTSTANDING...

BUILDING DIESEL ENGINES . . . This P&H overhead crane handles every move in warehousing and shipping these rugged diesels. Harnischfeger's dependable, precision controls enable the crane operator to spot engines safely and accurately; no wasted areas are required for maneuvering as with surface-bound equipment. Result? Air space works profitably for this manufacturer, while non-productive aislesways are reduced to an absolute minimum.

As with every P&H crane application, this installation is specifically engineered for the job. There are no compromises with quality, no questions about performance. Doesn't your plant deserve this kind of equipment for really efficient movement of materials? For more information write for bulletin C68-1, Department 123, Harnischfeger Corporation, Milwaukee 46, Wisconsin.

P&H "joy stick" controller enables the operator to control both bridge and trolley motions at the same time with one hand. This means that all motions, in the desired direction of travel—bridge, trolley, and hoist — can be controlled with only one lever in each hand. Result: Faster control, with less operator fatigue, far more effective load spotting on busy production floors.



HARNISCHFEGER

Milwaukee 46, Wisconsin

SPOT IT ONCE, SPOT IT RIGHT! ...WITH P&H PRECISION CONTROL!

On this continuous, mass-production diesel engine assembly line, every move has to be right. That's why you'll find teams of P&H Zip-Lift® and Hevi-Lift® hoists at all key locations. They bring engine components up to the work area, then help position heads, manifolds, and other heavy engine parts accurately, dependably, safely to maintain an uninterrupted flow of diesels. Day-in and day-out consistent hoist performance is essential to top production schedules.

Where hoist performance can have no margin for failure, as on this assembly line, chances are you'll find

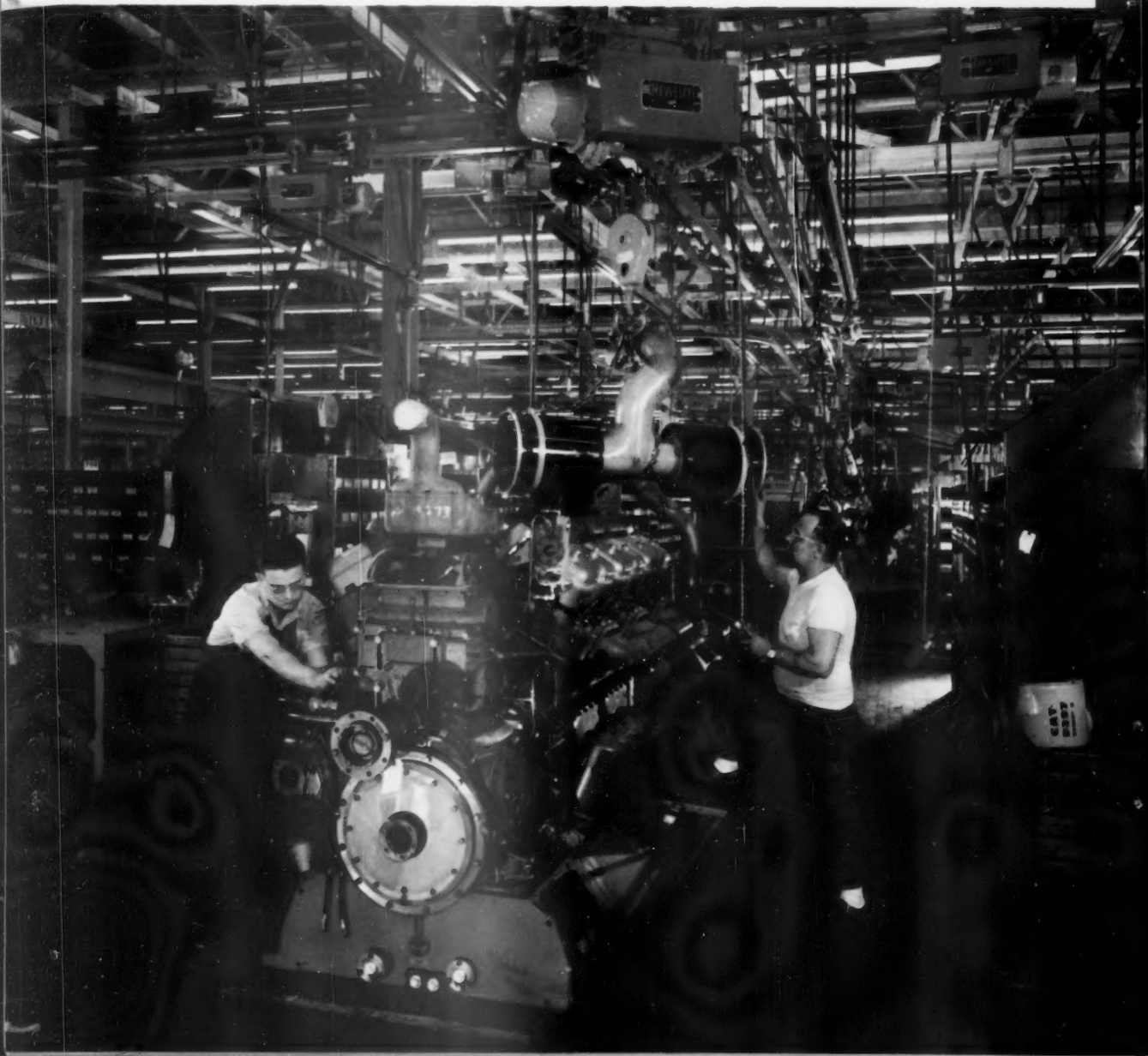
P&H hoists on the job. Every part — including electrical equipment — is built to P&H quality standards . . . standards that never heard of the word "compromise". Result: years of trouble-free performance for lowest actual lifetime costs of any hoist made today.

Write today for hoist bulletin H-62, Department 225, Harnischfeger Corporation, Milwaukee 46, Wisconsin.

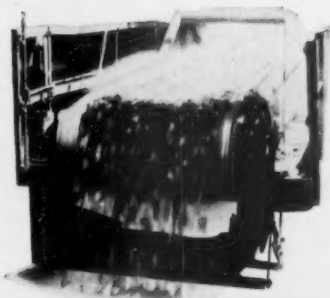
HARNISCHFEGER
Milwaukee 46, Wisconsin

P&H
ELECTRIC
HOISTS

Photo Courtesy Caterpillar Tractor Co., Peoria, Illinois



WHEN YOU NEED RESILIENCE... **PLUS**



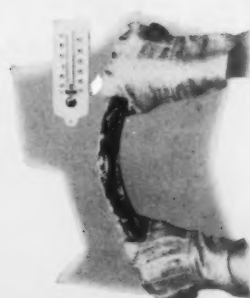
RESISTANCE TO HEAT

A million tons of hot coke have not harmed this neoprene belt.



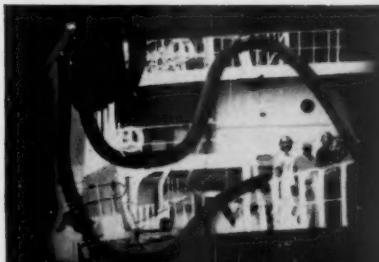
RESISTANCE TO FLAME

Neoprene coated firewalls for aircraft pass this flame thrower test.



RESISTANCE TO COLD

Neoprene remains flexible even at -65°F .



RESISTANCE TO OIL

Neoprene retains its properties in contact with oil and grease.



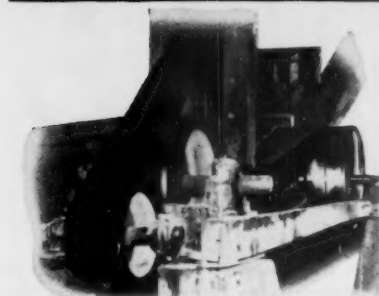
RESISTANCE TO SUN AND WEATHER

After 25 years' exposure, neoprene cable (bottom) shows no surface cracking.



RESISTANCE TO OZONE

Neoprene tire sidewalls resist ozone cracking.



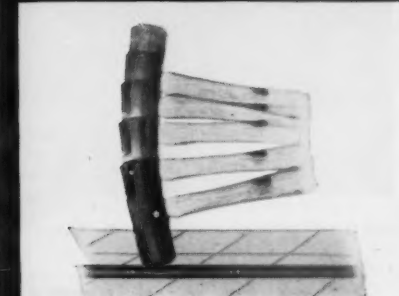
RESISTANCE TO ABRASION

Tough neoprene gives dependable service in severe applications.



RESISTANCE TO CHEMICALS

Neoprene assures protection against most acids and chemicals.



RESISTANCE TO IMPACT

Neoprene has outstanding resilience, resists permanent distortion.

SPECIFY VERSATILE DU PONT NEOPRENE synthetic rubber

A quarter century of industrial service has proven that versatile DuPont neoprene, with this balanced combination of properties, can meet a range of severe service requirements. Neoprene products are

available from rubber goods manufacturers and distributors. For additional information, write E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department P-3, Wilmington 98, Delaware.



BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

NEOPRENE MAKES TODAY'S PRODUCTS BETTER . . . TOMORROW'S PRODUCTS POSSIBLE

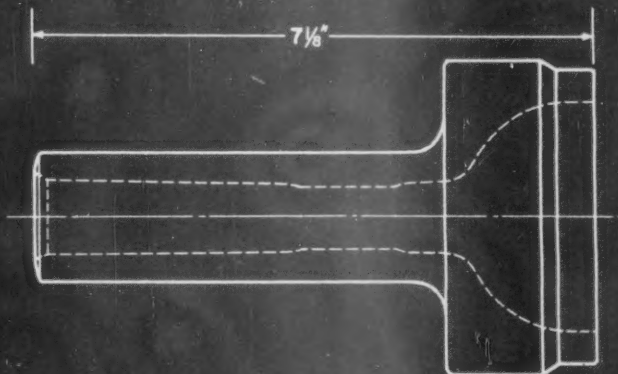
MARCH 13, 1961

For More Facts Write No. 206 on Information Card—Page 32

103

PROBLEM:

Excessive drilling and machining on vital defense forging.



SOLUTION:

AmForge engineers offered a design using new upset techniques.

The head was forged closer to final tolerances, cutting down machining time. The stem was pierced, eliminating a costly drilling operation.

Slight forging cost increase was more than offset by saving in machining. Also, strength was added to the critical stem by controlling distribution of metal and grain flow during piercing.

If you have a similar problem part, consult AmForge. Write for our new brochure and the name of your nearby AmForge sales engineer.

Remember: your problems . . . our challenge!



a division of American Brake Shoe Company, 1220 West 119th Street, Chicago 43, Illinois. Two plants in Chicago, one in Azusa, California

WHEN IT'S A VITAL PART, DESIGN IT TO BE



For More Facts Write No. 207 on Information Card—Page 32

Products

(Continued from page 100)

tory compounds. Cylinders of 6 in. and 14 in. diameter have been produced. Material maintains a flexural strength of 35,000 lbs. per sq. in. over temperature range of 25 through 2000 deg. C. It has a high modulus of elasticity similar to ceramic materials. Its weight is approximately half that of stainless steel and only 12% greater than alumina. Hardness is in range of boron carbide, long regarded as hardest man-made material. It has excellent resistance to oxidation at temperatures as high as 1000 deg C. **National Carbon Co., New Products Market Development, 270 Park Ave., New York 17, N.Y.**

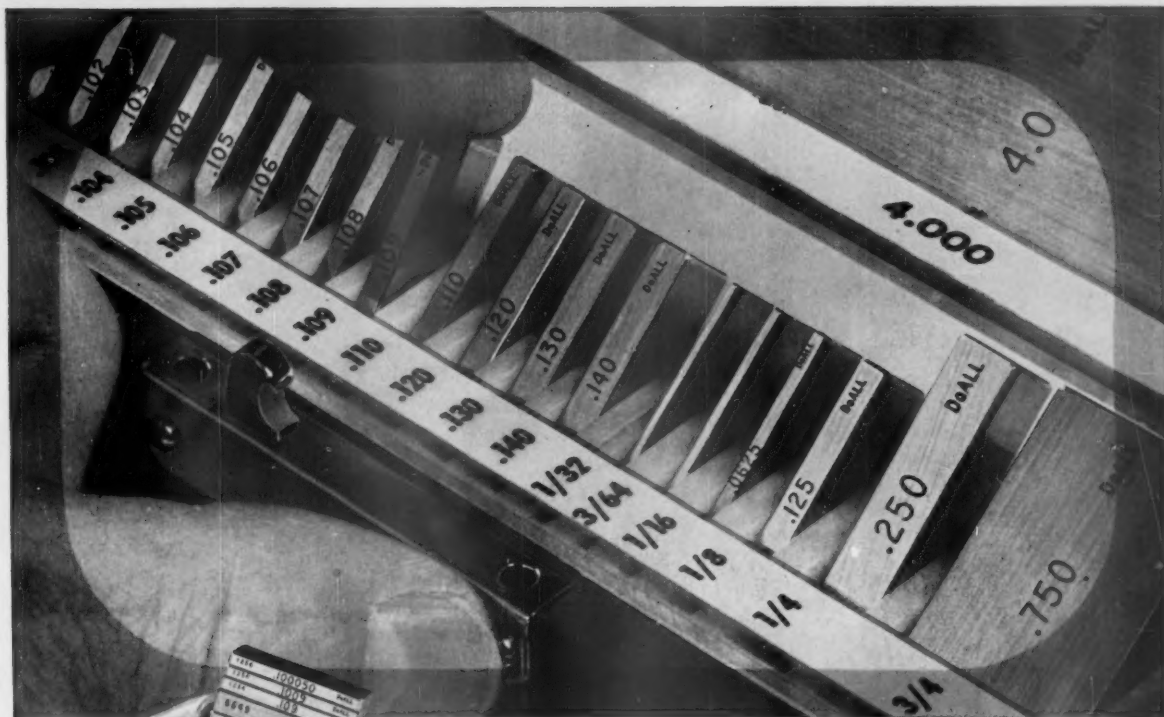
Write No. 21 on Information Card—Page 32

Intercom Phones Need No Electrical Connection



Fully transistorized portable or permanent intercom phones for use in warehouses, factories, etc., require no electrical connection or other external power. Receiver end of each phone contains transistorized crystal unit, transmitter and carbon unit. Two batteries in each phone serve for six months to a year. Phones are connected by regular lamp-type cord. Double lines without polarity assure easy installation. Overall serviceable distance is up to 90 miles. Also available are relay units for direct reception of outside telephone calls, bell-box set for outdoor use, desk set and head set. **Jobet Industries, Inc., 547 W. South Park Ave., Oshkosh, Wisc.**

Write No. 22 on Information Card—Page 32



... YOUR BEST BUY **DoALL STAINLESS STEEL GAGE BLOCKS**

See these new gage blocks made of stainless steel. At a cost only slightly more than regular blocks and less than chrome carbide or chrome-plated blocks—you get guaranteed performance and *Assured Accuracy*.

Here's why:

- **HARDNESS**—Over 68 Rockwell C any place on block surface.
- **WEAR**—More than three times the life of ordinary steel blocks.
- **CORROSION RESISTANCE**—Up to five times greater than steel blocks.
- **SURFACE FINISH**—.09 microinch AA.
- **WRINGABILITY**—Much better than ordinary steel blocks.
- **COEFFICIENT OF EXPANSION**—In the range of most steel materials.
- **BRINELLING**—Spindle impacts do not brinell DoALL stainless steel blocks.

DoALL stainless steel gage blocks are available in standard sets with AA and A+ accuracies.

Plus these bonus features:

- Size** —marked on the side of each block—visible when wrung.
- Case** —new, self-indexing, easy to use. Eliminates touching gaging surfaces of blocks.
- Care** —complete maintenance kit for care of gage blocks.
- Certified**—Certificate of Inspection covering each block in set.

SEE
Demonstration
IRE Show
March 20-23
New York Coliseum

Call your local DoALL store today. Ask your DoALL Gage Specialist to demonstrate the new stainless steel gage blocks.

GB-39



This is a typical DoALL Store

The DoALL Company, Des Plaines, Illinois

Call Your DoALL Sales-Service Store

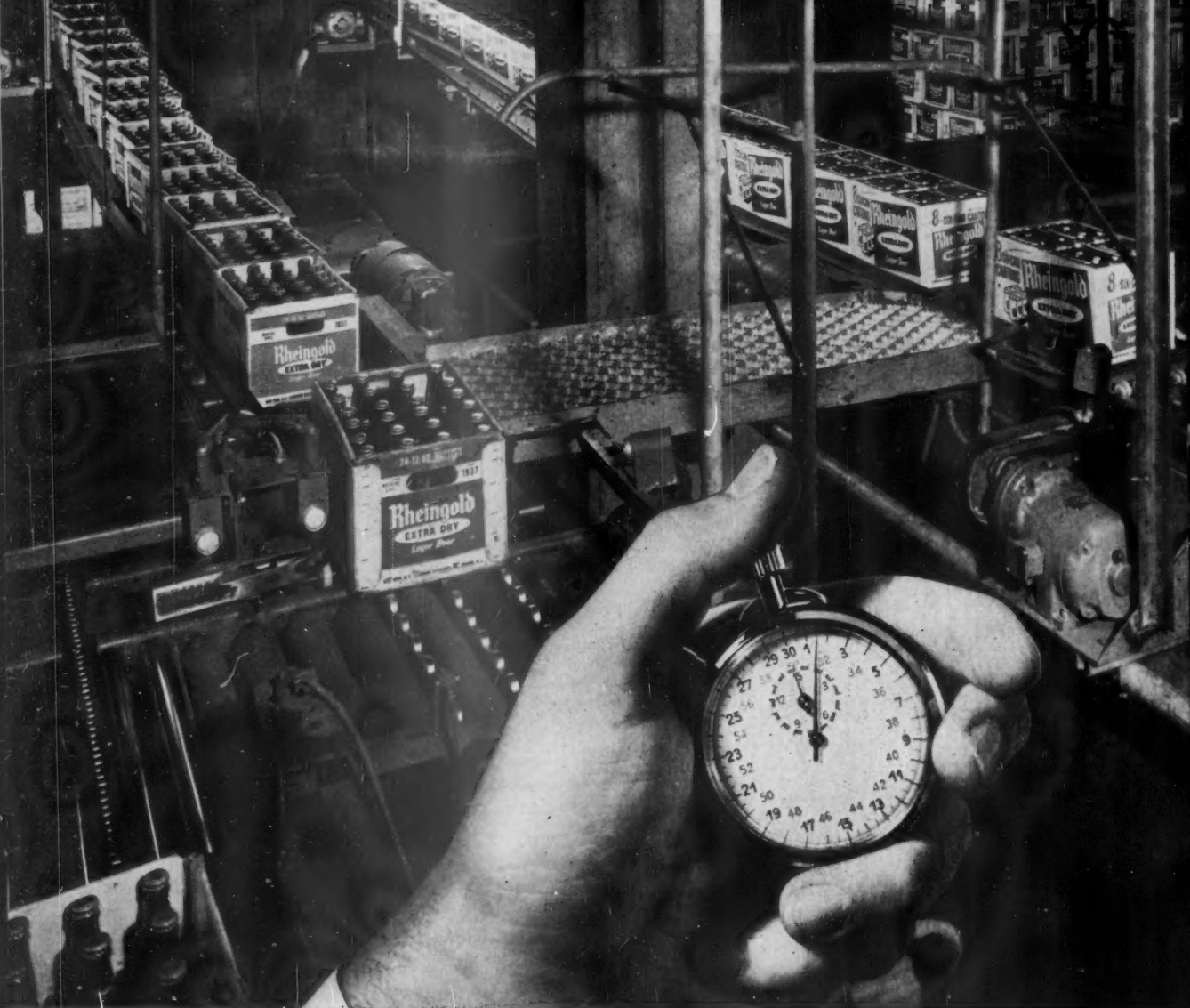


For More Facts Write No. 208 on Information Card—Page 32

For More Facts About Ad
on Following Page Write in No. 209→

MARCH 13, 1961

105



MASTER GEARMOTORS AUTOMATE PALLET LOADING AT 1½ SECONDS PER CASE

This most practical application of Master Gearmotors results in fast, positive handling of beer cases to facilitate automatic pallet loading.

The trick is in the ability of these gearmotors to start and stop action up to 40 times per minute in order to corner and place cases into a pre-set palletizing pattern.

The pallet is loaded, 3 cases at a time, by a fast cycling operation. Magnetic brakes stop action in-

stantly; motors quickly reverse and attain top operating speeds for 3 seconds, stop and reverse again.

The power system for the movement of cases is coordinated for fast delivery from bottling room to palletizing and thence to trucks. Right angle and parallel Master Gearmotors and brakemotors are used throughout . . . perform consistently where continuous duty cycle is a vital factor.

BUILDERS OF THE TOOLS OF AUTOMATION

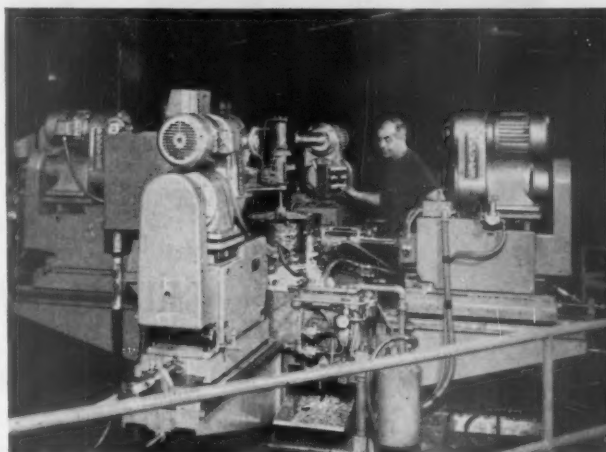
ONE SELF-CONTAINED, COMPACT POWER PACKAGE. This **MASTER GEARMOTOR** has been operating outdoors for 5 years regardless of weather. It has no exposed high speed couplings, no V-belts, chains or sprockets. Engineering and assembly costs are reduced. You can simplify installations and save space with vertical, horizontal and flange mountings; output shaft over, under, left or right. Ratings 1/8 to 125 hp. in right angle, parallel or in combination. Right angle ratios are available up to 96:1; parallel 120:1. Bulletin E-2409.



CONTOUR EPOXY-COATED TO ELIMINATE ENCAPSULATION CRACKING. New **RELIANCE ENCAPSULATED MOTOR** . . . gives you positive protection from dust, dirt, acid and water. Unlike other heavy molded coatings, stator windings are vacuum-impregnated with epoxy resin at a uniform thickness, follow the contour of the windings. You get maximum flexibility, tensile and bond strength, plus quicker cooling . . . all vital to superior motor performance. Bulletin B-2108.



INFINITELY VARIABLE OUTPUT SPEEDS AT LOW COST. **REEVES MOTODRIVES**, shown here powering this 4-position drilling and boring machine, are used extensively for hundreds of production needs. Horsepower ratings from 1/4 to 40, speeds from 1.71 to 4660 rpm. Speed variation ranges from 2:1 to 10:1. Available in hundreds of space-saving assemblies . . . with manual, remote or automatic process control (Airtrol). Bulletin M-592.



TOTAL SERVICE is an integral part of every Reliance product, from engineering and start-up assistance to maintenance and renewal parts. The photo shown here is typical of a Reliance Service Engineer's on-the-job availability—for maintenance and consultation on knotty problems. Every Reliance Sales Engineering Office and Distribution Center—nationwide—gives you the attention and experience necessary to assure the top performance you expect from the Reliance equipment you buy.

RELIANCE ELECTRIC AND
ENGINEERING CO.

— DEPT. 253A, CLEVELAND 17, OHIO • Canadian Division: Toronto, Ont.



Longer life for critical bronze parts

— when they are made of
AMPCO® alloys

When you select Ampco, you are getting engineered materials—alloys with characteristics that match the job requirements for resistance to wear, fatigue, impact, corrosion, etc.

Ampco can deliver the shape and form you require, because Ampco is equipped to manufacture by the best process for your purpose. Ampco can be obtained as cast or wrought products, and finish-machined by one organization with years of specialized experience.

Numerous parts of Ampco alloys are specified in original equipment. Maintenance, too, employs Ampco to reduce downtime. Ask for an Ampco Engineer to call — or write for literature.

AMPCO METAL, INC.
Dept. 370C, MILWAUKEE 1, WIS.
West Coast Div.: Huntington Park, California
Southwest Div.: Garland (Dallas County), Texas

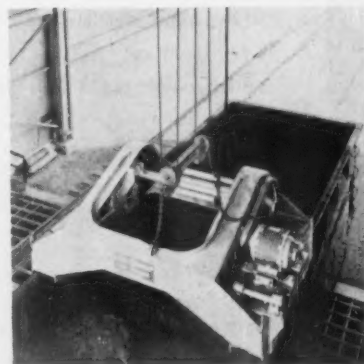


For More Facts Write No. 210 on Information Card—Page 52



Products

R.R. Car Shaker Unloads 8 to 10 Cars per Hour



A one-man-operated railroad car shaker incorporates low-frequency vibration shaker mechanism for fast, economical unloading of hopper bottom cars carrying coal, sand, ore, cinders, and other bulk materials. From 8 to 10 cars can be unloaded per hour. Shaker mechanism provides lengthwise shaking action with no undesirable sidewise movement. It can be mounted anywhere along length of car, with fixed or traveling hoists or cranes. Features include: rigid steel frame, 20 hp floating motor mounted on rubber bushings, efficient v-belt drive for low-slip power transmission, and low noise level. **Link-Belt Co., Prudential Plaza, Chicago 1, Ill.**

Write No. 23 on Information Card—Page 32

Quick Delivery
Most Complete Range of Standard Sizes

CALL YOUR LOCAL DISTRIBUTOR

Special Wrenches Made to Specification
Prompt Service

LOWELL

Reversible Ratchet
SOCKET WRENCH

Everything you need in a reliable socket wrench:

1. Strength from the great crushing action of special heat-treated steel paws... high tensile alloy handle... cap is all steel, not cast.
2. Safety from its strength... also, socket is held securely by snap ring and can't slip.
3. Speed gained through ease of handling—there is no lost motion.

Send for catalog

LOWELL WRENCH CO.

WORCESTER 9, MASS.



For More Facts Write No. 211 on Information Card—Page 52

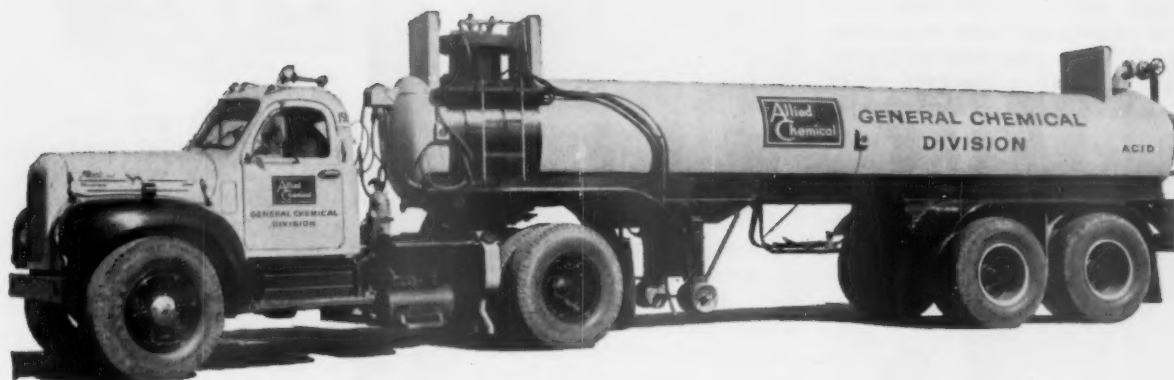
—COMING—

**PURCHASING MAGAZINE'S
ANNUAL VALUE ANALYSIS
ISSUE**

Hundreds of Cost-Saving
Case Histories, plus a
study of General Electric
Company's Pace-Setting
Value Buying Program.

MAY 8—Watch For It—MAY 8

Now... HF by Tank-Transport Delivery



Introduced by General Chemical ...The Nation's Leading HF Producer

PRODUCING PLANTS (Anhydrous and Aqueous)

North Claymont, Delaware
Nitro, West Virginia
Baton Rouge, Louisiana

BULK STATIONS (Aqueous HF, 70% only)

Pittsburgh, Pa.
Chicago, Ill.
Los Angeles, Calif.
Buffalo, N.Y.
Cleveland, Ohio

The convenience and flexibility of tank-transport delivery of Hydrofluoric Acid is now being provided by General Chemical.

This new country-wide service is being introduced with a fleet of special tank transports, each with capacity of approximately 3000 gallons (15 net tons).

Aqueous Hydrofluoric Acid, 70%, is offered for immediate delivery. Similar deliveries of Anhydrous HF can also be made available, and we welcome the opportunity to discuss your individual requirements.

For full information on this new HF service, call your nearest General Chemical office.

Basic to America's Progress



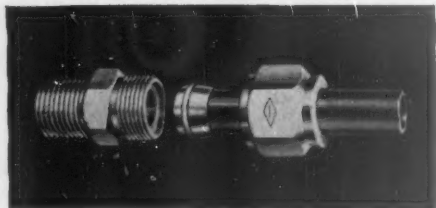
GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N. Y.

it takes only this
one



one versatile fitting



to meet more pressure, temperature, shock, vibration conditions than does any other tube fitting ... in more styles, sizes, combinations and materials than any other fitting. For more information, see next page ... and write for Catalog 3108.

BUTT JOINT
HI-SEAL

IMPERIAL  **EASTMAN**
Imperial-Eastman Corporation General Offices: 6300 West Howard Street, Chicago 48, Illinois

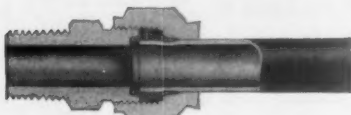
In Canada: Imperial-Eastman Corporation (Canada) Ltd., Barrie, Ontario

For More Facts Write No. 213 on Information Card—Page 32

one

tube fitting— versatile Hi-Seal®

With Hi-Seal you can overcome moderate to toughest service conditions—in one entire system or in several. With simple variations in the basic fitting, you meet al-




most every need—just specify a change in type of metal and vary the sleeve and nut. Thus, you match Hi-Seal to pressure, temperature, vibration, shock and installation variables.

50 TYPES—1300 SIZES

Hi-Seal Fittings are available in straight connectors, straight reducers, unions, adapters, elbows, tees, crosses, caps, couplings, swivel nuts, valves, port seal and Braze-Seal. Altogether there are almost 50 types—collectively more than 1300 sizes, generally from 1/8" tube O.D. to 1 1/2". Metals available include steel, stainless steel, brass, aluminum, titanium, Monel and others. Combinations are almost endless!

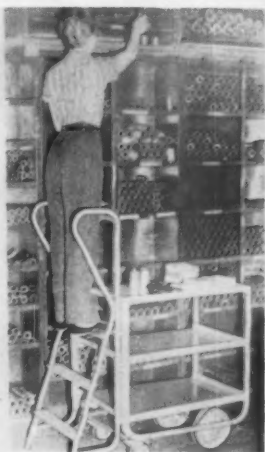
Now Imperial-Eastman meets all your requirements for hydraulic-pneumatic-flow system components: tube fittings, valves, couplings, flexible and rigid hydraulic and pneumatic lines, thermoplastic tubing, tubing tools. See Imperial-Eastman first!

FITTINGS

 **IMPERIAL-
EASTMAN**

Products

Combined Ladder-Trucks Provide Safe High Reach



A ladder-truck combination provides safe and easy access to high bins and shelves in order picking and distribution operations. Unit handles small parts, packaged goods, books, files and records. Operator's weight depresses spring loaded ladder to floor, providing positive braking action on its rubber tipped feet. Truck cannot move until operator steps off ladder. Steps are safety treaded. Top cross bar and extended handles give forward and side support. Nutting Truck and Caster Co., 1201 W. Division St., Faribault, Minn.

Write No. 24 on Information Card—Page 32

Vapor Device Detects Explosive Gas Levels



An explosive gas detector primarily intended for use aboard

ships may also be used advantageously in industry to detect concentrations of gasoline, natural gas and many other combustible vapors. Detector consists of control and indicator panel, a sensor unit and connecting cable assembly. It is supplied for operating voltages of 6 and 12 volts d-c and draws a current of only 1.2 amps. Sensor unit is installed where combustible mixtures may collect, and control unit in some convenient location. In operation, sensing elements indicate within seconds whether dangerous concentration of vapors exists. Technical Information Dept., Engelhard Industries, Inc., 75 Austin St., Newark 2, N. J.

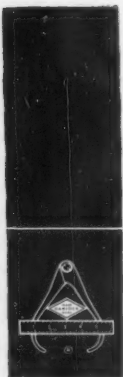
Write No. 25 on Information Card—Page 32

Unit Allows On-Stream Analysis of Water



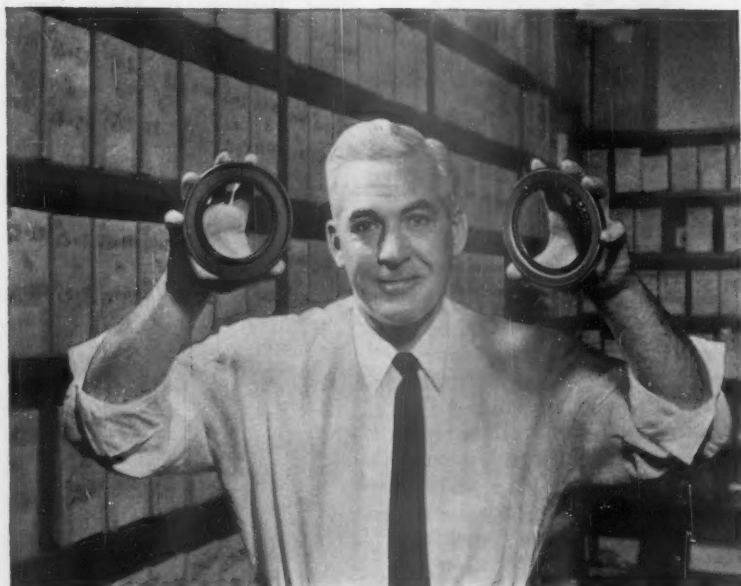
Continuous, on-stream analysis of water is provided by an instrument that continuously and automatically duplicates the principles of colorimetric analysis. Sample is piped into instrument and mixed with reagents. When silica is present, sample turns blue. Intensity of color is then measured and recorded, with upper-limit switch to activate alarm if desired. In 0 to 300 parts per billion silica range, instrument permits detection of concentrations as low as 5 ppb with plus or minus 2 ppb accuracy. Typical applications include analysis of boiled water, condensate and effluents from demineralizers, water softeners, and waste disposal treatment plants. Water Chemicals Div., Hagan Chemicals & Controls, Inc., Hagan Center, Pittsburgh 30, Pa.

Write No. 26 on Information Card—Page 32



ENGINEERED OIL SEALS

from Your Local
Bearing
Distributor



For positive bearing protection specify high-quality Garlock KLOZURE Oil Seals from one of the listed authorized bearing distributors.

NOW—you can draw from over 1800 standard stock items of Garlock KLOZURE® Oil Seals, and enjoy "off-the-shelf" delivery from the nearest of these authorized distributors:

ALABAMA	
OWEN RICHARDS CO.	Birmingham (4)
ARIZONA	
HELMS INDUSTRIAL SUPPLY	Phoenix
TUCSON BEARING CO.	Tucson
ARKANSAS	
ALLIED ARKANSAS BEARING CO.	Little Rock
CALIFORNIA	
AMERICAN BALL & ROLLER BEARING CO.	Oakland
BAY CITY BEARING CO. INC.	Los Angeles (Maywood)
MATERSON BEARING CO. INC.	San Jose
RELIABLE BEARING & SUPPLY CO.	San Bernardino
COLORADO	
BEARING SERVICE & SUPPLY CO.	Denver (16)
CONNECTICUT	
TEK BEARING CO.	Stratford
FLORIDA	
BALL & ROLLER BEARING CO.	Tampa
FLORIDA BEARINGS, INC.	Miami (37)
GEORGIA	
BEARINGS & DRIVES OF SAVANNAH, INC.	Savannah
DIXIE BEARINGS, INC.	Atlanta
IDAHO	
WESTERN BEARINGS, INC.	Boise
ILLINOIS	
BEARING HEADQUARTERS CO. DIV. OF	
RAY M. RING CO. INC.	Chicago (44)
BERRY BEARING CO.	Chicago Heights
GENERAL BEARINGS CO.	Chicago (16)
ILLINOIS BEARING CO.	Peoria
INDIANA	
BEARING SERVICE CO.	South Bend
IOWA	
IOWA BEARING CO.	Davenport
LOUISIANA	
MONROE AUTOMOBILE & SUPPLY CO.	Monroe
MICHIGAN	
DETROIT BALL BEARING CO.	Detroit (1)
MINNESOTA	
MINNESOTA BEARING CO.	Minneapolis (3)
POWER SUPPLY CO.	Minneapolis (8)
MISSOURI	
BEARING DISTRIBUTORS, INC.	Kansas City (10)
NEIMAN BEARINGS CO.	St. Louis (3)
MONTANA	
BEARING SUPPLY CO.	Billings
MONTANA HARDWARE CO.	Butte
NEBRASKA	
PRECISION BEARING & TRANSMISSION CO.	Omaha (2)
NEW MEXICO	
MINE SUPPLY CO.	Carlsbad
SAN MATEO BEARING CO.	Grants
NEW YORK	
SYRACUSE BEARING CO.	Syracuse
T. T. BEARING CO.	Rochester
NORTH DAKOTA	
WESTERN BEARING & SUPPLY CO.	Fargo
OHIO	
BEARING DISTRIBUTORS, INC.	Cleveland
BEARINGS INC.	Cleveland
OKLAHOMA	
CLARK BEARING SPECIALIST & SUPPLY CO.	Tulsa
OREGON	
BEARING SALES & SERVICE INC.	Portland
BEARING SUPPLY CO.	Eugene
TEXAS	
COTTINGHAM BEARING CO.	Dallas
JOHNSTON BEARING & SUPPLY CO.	Houston
MIDCAP BEARING SERVICE	San Antonio
SEYMOUR BEARING CO.	Amarillo
UTAH	
BEARING ENGINEERING & SALES CO.	Salt Lake City
WISCONSIN	
BADGER BEARING CO.	Milwaukee
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GARLOCK

These listings are headquarters only, and many of the companies have branch outlets in your area. For more information, contact the nearest of the 26 Garlock sales offices and warehouses throughout the U.S. and Canada, or write Garlock Inc., Palmyra, N.Y.

Canadian Div.: Garlock of Canada Ltd.
Plastics Div.: United States Gasket Co.

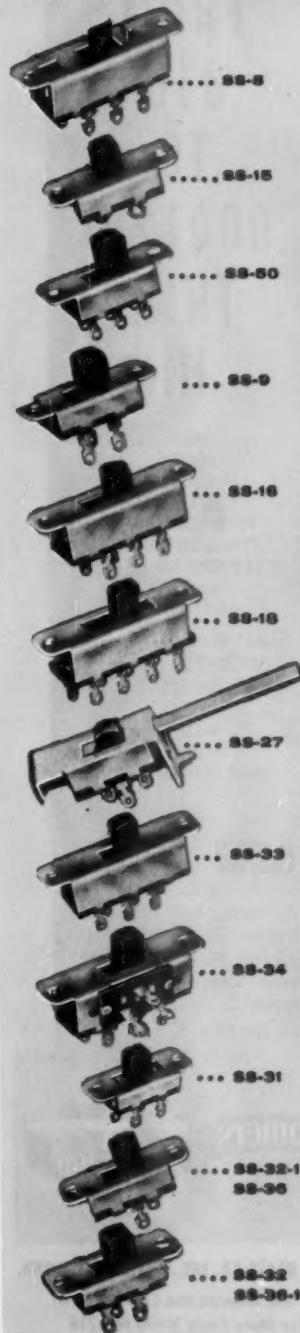
Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded and Extruded Rubber, Plastic Products





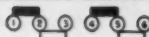



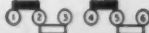

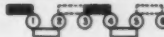


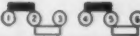
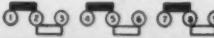



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TODAY'S BEST SLIDE SWITCH BUY...

... for Economy - Style - Convenience - Circuit Versatility

Write for Stackpole Slide Switch Bulletin



TYPE NUMBER	ACTION	SCHEMATIC		RATINGS (U.L.T. Inspected)	
		 POSITION 1	 POSITION 2	AC AMPS. @ 125 v.	DC AMPS. @ 125 v.
		 POSITION 3	 POSITION 4		
MEDIUM-DUTY TYPES for radio, TV, audio equipment, instruments, toys and many others.					
SS-5	DP-DT Spring-Return, No detent			0.5	0.5
SS-15	SP-ST Pushbutton, Momentary, No detent			1.0	—
SS-32	SP-DT Maintained, With detent			1.0	1.0
SS-32-1	SP-ST Maintained, With detent			1.0	1.0
SS-50	DP-DT Maintained, With detent			0.5	0.5
3-AMPERE TYPES for line switching, appliances, power tools, lighting fixtures, etc.					
SS-9	SP-DT Spring-Return, No detent			3.0	0.75
SS-16	3-POSITION Maintained, With detent			3.0	0.5
SS-18	4-POSITION Maintained, With detent			3.0	0.5
SS-27	SP-DT Spring-Return Plunger, No detent			3.0	0.75
SS-33	DP-DT Maintained, With detent			3.0	0.5
SS-34	TP-DT Maintained, With detent			3.0 0.1	—
6-AMPERE TYPES no larger than conventional 1-amp types, yet handle heavy-duty motorized devices with ease.					
SS-31	3-POSITION Maintained, With detent			6.0	1.0
SS-36	SP-ST Maintained, With detent			6.0	1.0
SS-36-1	SP-DT Maintained, With detent			6.0	1.0

STACKPOLE

Electronic Components Division
STACKPOLE CARBON COMPANY
St. Marys, Pennsylvania



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DETROIT STAMPING COMPANY

350 MIDLAND AVENUE
DETROIT 3, MICHIGAN



For More Facts Write No. 217
on Information Card—Page 32

Products

Automatic Wire Cutter Is Fast, Versatile



An automatic wire cutter which operates on normal 115 volts 60 cycle power can easily produce wire lengths from 1 to 60 in. in production quantities. Special attachment is available for lengths to 240 in. All types of bare and insulated wire can be handled, in sizes from 26 to 12 gage. All adjustments for length and wire size are accomplished on front panel, in three to five minutes, and require no special skills. Automatic throw-out permits single piece operation for prototype or set-up purposes. Typical production rates are 3600 pieces per hour for 20 in. length and 900 pieces per hour for 60 in. length. **Dickinson & Associates, 940 Alma St., Glendale, Calif.**

Write No. 27 on Information Card—Page 32

Plastic Nameplate Stock Is Tough, Adherent



A decal material for nameplates and emblems combines the toughness and attractiveness of Mylar film with unique adhesive. Material is a 3 mil metallized Mylar (Please turn to page 118)

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REQUIREMENTS
FROM
.010"
TO
.000125"
THIN
IN**

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COPPER
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NICKEL SILVER
PHOSPHOR BRONZE
BERYLLIUM COPPER
HI-TEMPERATURE METALS
Tin Coated Metals
and Rare Metals

and from .020" to
.000125" thin in

NICKEL
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INCONEL
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GLASS SEALING ALLOY

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For More Facts Write No. 218
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PURCHASING

The man
with the
"know
power"



Because your purchasing activities have such an important effect on the overall profits of your company, you need sound facts to support each of your buying decisions. That is why the Industrial Tape Division of Minnesota Mining and Manufacturing Company takes special pains to see that you get the kind of information you need. Your 3M Representative or "SCOTCH" BRAND Tape Distributor can furnish full facts concerning tape applications. He can help you suggest cost-saving ways to use tapes in production, packaging, and maintenance. He has the backing of extensive 3M laboratory "know-how" to help you predict shelf life of tapes and gain the advantage of larger quantity discounts. And he can help you be sure the correct tape is selected to fit any of the diverse applications throughout your offices, factories, or warehouses. Call your 3M Representative or "SCOTCH" BRAND Tape Distributor today for the information you need. Or, write 3M Company, 900 Bush Avenue, St. Paul 6, Minnesota, Dept. IBJ-31.

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MINNESOTA MINING AND MANUFACTURING COMPANY

... WHERE RESEARCH IS THE KEY TO TOMORROW

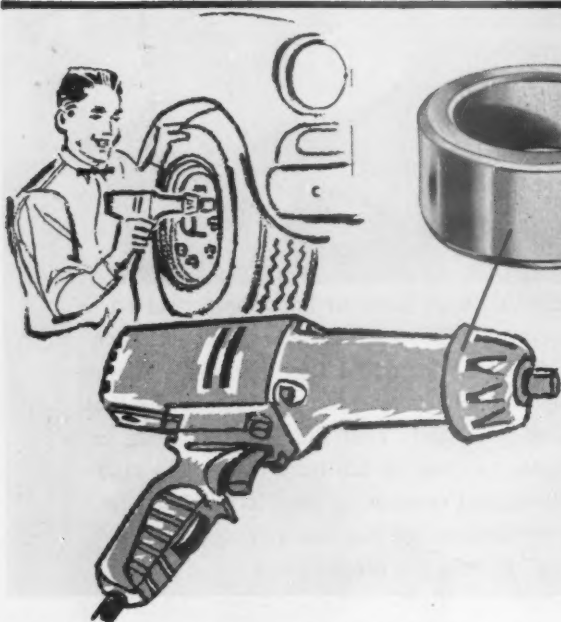
"SCOTCH" IS A REGISTERED TRADEMARK OF 3M CO., ST. PAUL 6, MINN.



For More Facts Write No. 219 on Information Card—Page 32

600 SERIES

**THE FORGEABLE BEARING ALLOYS THAT
STAND UP ON THE REALLY TOUGH JOBS!**

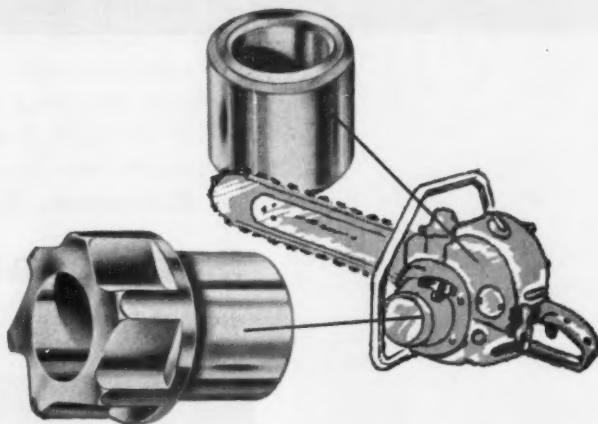


600 ALLOY NOSE BEARING WITHSTANDS THE PUNISHING SHOCK LOADS OF AN IMPACT WRENCH

This heavy-duty impact wrench takes the rigorous punishment of hard industrial use right on the nose . . . and right on the 600 Series nose bearing. This bearing was especially chosen by the manufacturer because of its ability to absorb a range of 1600 to 1800 impacts per minute at a torque of from 0 to 250 foot pounds. By specifying 600 bearing alloy, the manufacturer gets superior performance from his finished product.

600 ALLOY RATCHET AND DRIVE GEAR BEARING TAKES THE TERRIFIC POUNDING OF A HIGH POWERED CHAIN SAW

Professional woodcutters give chain saws a rough time for hours on end, all year round, and these rugged saws must be built to take punishment. With chain speeds up to 3000 feet per minute, the ratchet and drive gear bearings, for example, must have a very high strength, hardness and good resistance to wear with minimum lubrication. That's why 600 Series Alloy was specified for both parts . . . the ratchet is a forging and the bearing was produced from 600 Series rod.



MUELLER BRASS CO. SPECIALIZES IN ALLOYS FOR DIFFICULT APPLICATIONS

For complete engineering data, write
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The alloys available from the Mueller Brass Co. range from those having high hardness and wear properties, to alloys that must possess excellent electrical conductivity, and ones that must have free-machining properties. Let our engineers help you select the alloy best suited to your exact application.



MUELLER BRASS CO. PORT HURON 30, MICHIGAN

326

For More Facts Write No. 220 on Information Card—Page 32



Cambridge Nealloy Metal-Mesh Belt

TAKES HEAVIER LOADS,

HIGHER SPEEDS IN 1000° F+ TEMPERATURES

High strength with ductility—that's the secret of how Cambridge Nealloy Belts can give faster production. For example, figure how much more ware you can handle on Nealloy Belts with a tensile strength of 46,500 psi at 1000° F. than on ordinary carbon steel . . . important for high speeds or where reversals of stress, repeated loadings and unloadings or vibrations occur.

There is a complete line of Cambridge Belts in special and standard metals and alloys to meet your specific requirements—custom built in any one of

9 basic weaves to insure most efficient processing.

Experienced Cambridge Field Engineers—experts in their field—are available to discuss your needs and help you select the belt best suited to your operations. Or, they can offer you sound advice on the installation, operation and maintenance of your Cambridge Belts. Talk to your Cambridge man soon. He's listed in the Yellow Pages under "Belt-ing, Mechanical". Or, write for free 130-page reference manual.



The Cambridge Wire Cloth Co.

Department R • Cambridge 3, Maryland

Manufacturers of Metal-Mesh Conveyor Belts, Flat Wire Conveyor Belts,
Wire Cloth, Wire Cloth Fabrications, Gripper® Metal-Mesh Slings

Machining Bond on Castings

◆ Here's the **MBC** plan: if you uncover a flaw while working on one of our castings, we pay your machining cost. This is in addition to replacing the casting without charge.

◆ Our customers like the **Machining Bond on Castings**. It is one more assurance that it pays to buy high quality castings in the first place. Please write for our booklet on the Resources and Capabilities of:

Morris Bean & Company
Yellow Springs, Ohio



aluminum and ductile iron castings



For More Facts Write No. 222
on Information Card—Page 32

Products

(Continued from page 114)

in chrome and gold which can be die-cut and silk screened with standard screen processing inks or enamels. Overall thickness of almost 5 mils makes stock ideal for surfaces that are not perfectly smooth. Adhesive has low initial tack for easy positioning but builds to an adhesion of over 90 oz per in. width within 24 hrs. Adhesive and backing are completely impervious to oil, grease, solvents, detergents, acids, etc. It will adhere firmly to any metal, wood, glass, leather, plastic surfaces, painted or unpainted. **Permacel, New Brunswick, N.J.**

Write No. 28 on Information Card—Page 32

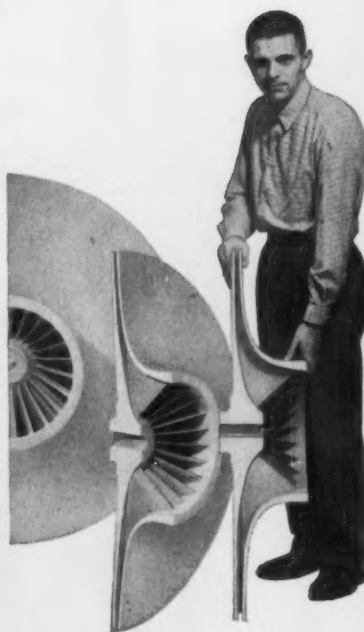
Ceramic Features High Temperature Strength



A vacuum-tight, high-strength 99.5% aluminum oxide ceramic has a maximum working temperature of 3200 deg F when properly supported. Material retains a flexural strength of 23,900 psi at 2000 deg F and 15,300 psi at 2500 deg F. It is a dense material with a specific gravity of 3.8 and is one of the hardest synthetic materials known, rating at 9 on Moh's scale and 80 on Rockwell 45 N scale, thus being extremely abrasion-resistant. Due to high aluminum oxide content and absence of silica, ceramic has particularly high resistance to corrosion even at elevated temperatures. **Coors Porcelain Co., 600 Ninth St., Golden, Colo.**

Write No. 29 on Information Card—Page 32

(Advertisement)

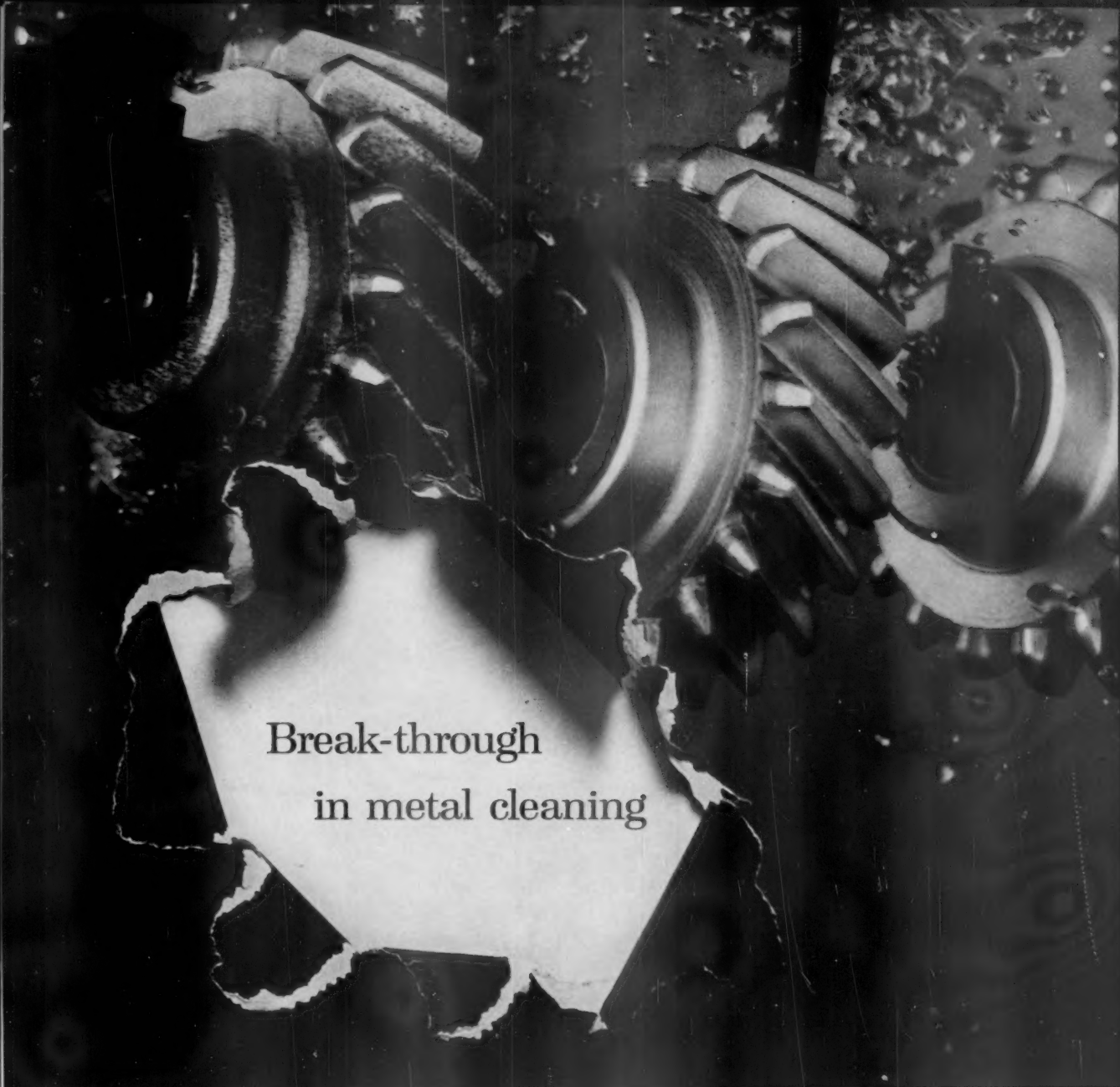


Large aluminum impellers cast smooth and accurate with metallurgical quality for high speed applications are among the specialties of Morris Bean and Company, Yellow Springs 10, Ohio.



aluminum
ductile iron
foundries

For More Facts About Ad
on Facing Page Write in No. 223→
PURCHASING



Break-through in metal cleaning

Dow creates new chemicals to solve customers' problems

Bedeveled by knotty production problems? Faced with rising maintenance costs? Stumped in new-product developments? Put your problems up to Dow. We're geared to move, industry wide, to help you find a solution. For example:

No fire or flash point. Some cold-cleaning solvents burn at the drop of a spark . . . are so toxic they require special precautions . . . or so unstable they attack sensitive metal. To lick these problems, Dow developed a new solvent, Chlorothene® NU. It is less toxic than most chlorinated solvents, can be safely

used on most common metals, and has no fire or flash point measurable by standard methods.

24-hour power. Stationary engines that supply power must run around the clock. Down time due to freezing, overheating or clogging cannot be tolerated. Ambitrol® FL, new chemically balanced Dow coolant, keeps engines running clean in nearly any clime, as no combination of antifreeze and water can.

Foam from a gun. Insulation once had to be cut and fitted by hand. Recently Dow created its family of Vorane®

urethane chemicals. Now low-cost rigid urethanes can be foamed in place or sprayed on a surface right in production. They insulate, deaden sound, prevent corrosion, add structural strength to metal . . . and new applications develop daily.

If you'd like literature on reclaimable Chlorothene NU, Ambitrol FL, or the Vorane urethane chemicals, write us in Midland. Or if you have a problem, regardless of industry, bring it to us. We'd like to help you solve it.

*TRADEMARK

THE DOW CHEMICAL COMPANY

DOW

Midland, Michigan

Mobil cuts costs at Chain Belt



At its Milwaukee plant, Chain Belt employs 28 in-plant materials handling units such as this vehicular crane. About two years ago, by changing to premium Mobil motor oil and grease, Chain Belt was able to extend oil change and greasing intervals on this automotive equipment. Resultant reduction of oil changes and grease jobs, plus oil filter savings, has amounted to \$905.



...latest savings \$14,679!

Having produced savings at Chain Belt Company for 20 years, the Mobil Program continues to cut lubrication costs further, reduce parts failures even more . . . has saved an extra \$14,679 in the past 3 years!

The broad scope of Chain Belt's operation poses complex and unusual lubrication problems. One of the world's largest manufacturers of chains and sprockets and a pioneer in the field of power transmission, this Milwaukee company is also a leading producer of bulk material handling equipment, water sewage and waste treatment equipment, construction machinery and self-aligning roller bearings.

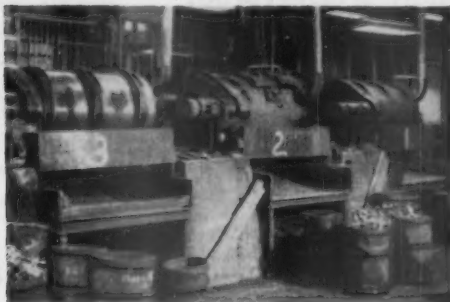
20 years ago, Chain Belt became one of the first industrial concerns to adopt the unique maintenance concept pioneered by Mobil—the Mobil Program of Correct Lubrication. Through

Program methods, including a periodic review of oil analysis results, purchase practices, and lubrication intervals, Mobil Engineers continue to produce more efficient operation and new savings in a wide variety of areas. Overall, Chain Belt has effected savings of \$14,679 in the past 3 years. Details of specific savings are discussed on these pages.

How is it possible for a lubrication program to produce cost reductions like this? Ask your Mobil Representative for the full details. Mobil Oil Company, 150 East 42nd Street, New York 17, New York.



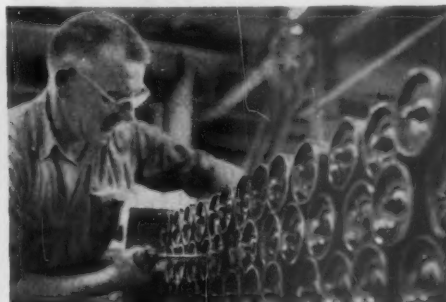
Leakage, make-up costs, frequent refillings and hazardous footing resulted from the use of a conventional lubricant in the automatic oilers on punch presses. At Mobil's suggestion, a change to a semi-fluid grease has saved \$5,808 in 3 years . . . has also improved plant appearance and safety.



Chain Belt employs several tumblers in its foundry to clean sand and burrs from castings. Heavy shock loads contributed to periodic failure of gear-head motor drives. A change to a new Mobil lubricant cut failures in half . . . saved \$7,200 in labor and parts costs in a 3-year period.



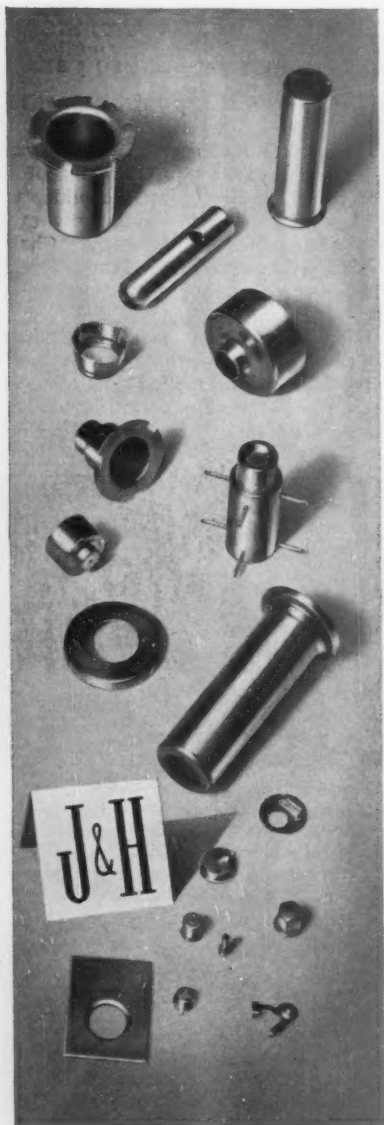
Periodic bearing failures on two carburizer furnaces were traced by Mobil to lubricant melt-out upon exposure to the 400° F. temperature above the furnaces. Substitution of a newly developed high temperature Mobil grease has reduced failures and cut application costs by \$766 in 3 years.



Mobil also provides products and service for equipment manufactured by Chain Belt. Here, new Rex belt conveyor idlers are filled with a Mobil grease which protects against entrance of dirt and water during storage. Mobil rust preventive is also used to treat 4 million feet of chain annually.

Correct Lubrication

MAKE US PROVE IT



Choice of metals and finishes. Sizes to 2.75 in. OD and 3.75 in. deep.

We at J&H make the claim we can give you consistently fast delivery on your small precision metal stampings and deep-drawn parts. Years of experience has taught us how to do this while providing unsurpassed quality and value. Ingenuity is part of the secret. In addition, our high-speed machines can turn out close tolerance parts in volume for low unit costs. And low overhead saves you needless expense. Make us prove just how much value your dollars can buy. Send a drawing for a free estimate and ask for Bulletin 81.

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An affiliate of Superior Tube Co.

For More Facts Write No. 226
on Information Card—Page 32

Products

Microminiature Resistor Parts from Epoxy Rods



Miniature and microminiature resistor bobbins, coil forms and encapsulating cups machined from cast epoxy rods possess excellent electrical, mechanical and chemical properties. Resistor parts are mass-produced with extreme accuracy and uniformity in sizes as small as 1/32 in. O.D. and 1/32 in. in length, to wall thicknesses of .004 in. Bobbin assemblies are produced complete with termination tabs and leads. Special cup assemblies can be designed for chokes, coils, transformers, filters, semiconductors and modules. **Omega Precision, Inc., 744 N. Coney Ave., Azusa, Calif.**

Write No. 30 on Information Card—Page 32

Fluorescent Ballast Is Totally Weatherproof

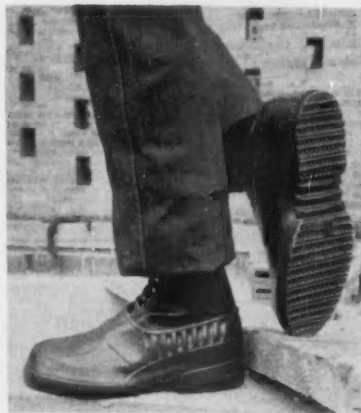


Cores, coils and capacitors of totally weatherproof fluorescent ballasts are encapsulated in a special compound which also serves as ballast case, cannot rust or corrode. Conventional metal case and seam have been eliminated. Designed for proper lamp starting in temperatures as low as minus 20 deg. F, ballasts in radically different cylindrical shape can be operated even when submerged,

provided watertight junction boxes are also used. Movable zinc-plated steel mounting brackets permit all-angle installation. **General Electric Co., Schenectady 5, N.Y.**

Write No. 31 on Information Card—Page 32

Work Rubber Fits All Types of Shoes



A work rubber made to go over work shoes is lightweight, flexible, comfortable, tough and surefooted. It comes in four sizes to fit work shoes from sizes 6 to 14. Secret of its fit is deeply corrugated pliable shank which stretches to permit rubber to fit easily over any type of work shoe. Rubber is made of tough, amber translucent material that is durable and washable. Tough, anti-skid sole adds safety and surefootedness in working on wet, slippery surfaces, including fats, greases, oils. **United States Rubber Co., New York 20, N. Y.**

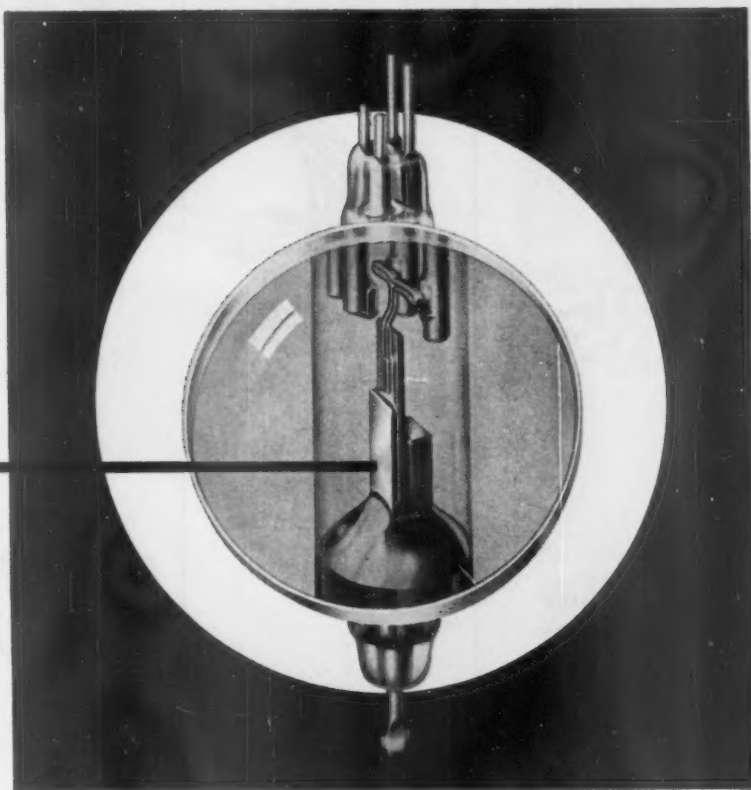
Write No. 32 on Information Card—Page 32



"As I was saying when I was interrupted by the closing of last week's meeting . . ."

BILLIONS OF BENDS

Prove
SANDVIK
SPRING
STEEL'S —
Fatigue
Resistance



Here is another example of the extraordinary fatigue life you can get from Sandvik Spring Steel.

C. P. CLARE & CO. uses Sandvik 12W12Cl Steel as the spring support for the armature assembly in their line of Mercury-Wetted Contact Relays. Here, from a letter by Mr. C. H. Smith is what they say about it.

"The steel piece deflects through a complete cycle — once for each operation of the relay. Sandvik Steel was chosen for its excellent fatigue resistance. When you realize Clare HG

relays have a life expectancy measured in billions of operations you can see the importance we place on selecting top grade materials."

The steel used for this application is only one of Sandvik's many types of specialty spring steels. Each type provides consistent, predictable results for a specific range of application.

For more information on Sandvik Specialty Steels and how they can be applied advantageously, use the coupon below or send us a note on your letterhead.

SANDVIK STEEL, INC.

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Tel. SWarthmore 7-6200

In N. Y. C. ALgonquin 5-2200

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Chicago • Los Angeles

SANDVIK CANADIAN LTD.

P.O. Drawer 1335, Sta. O.
Montreal 9, P. Q.

Works: Sandviken Sweden



SANDVIK STEEL, INC.

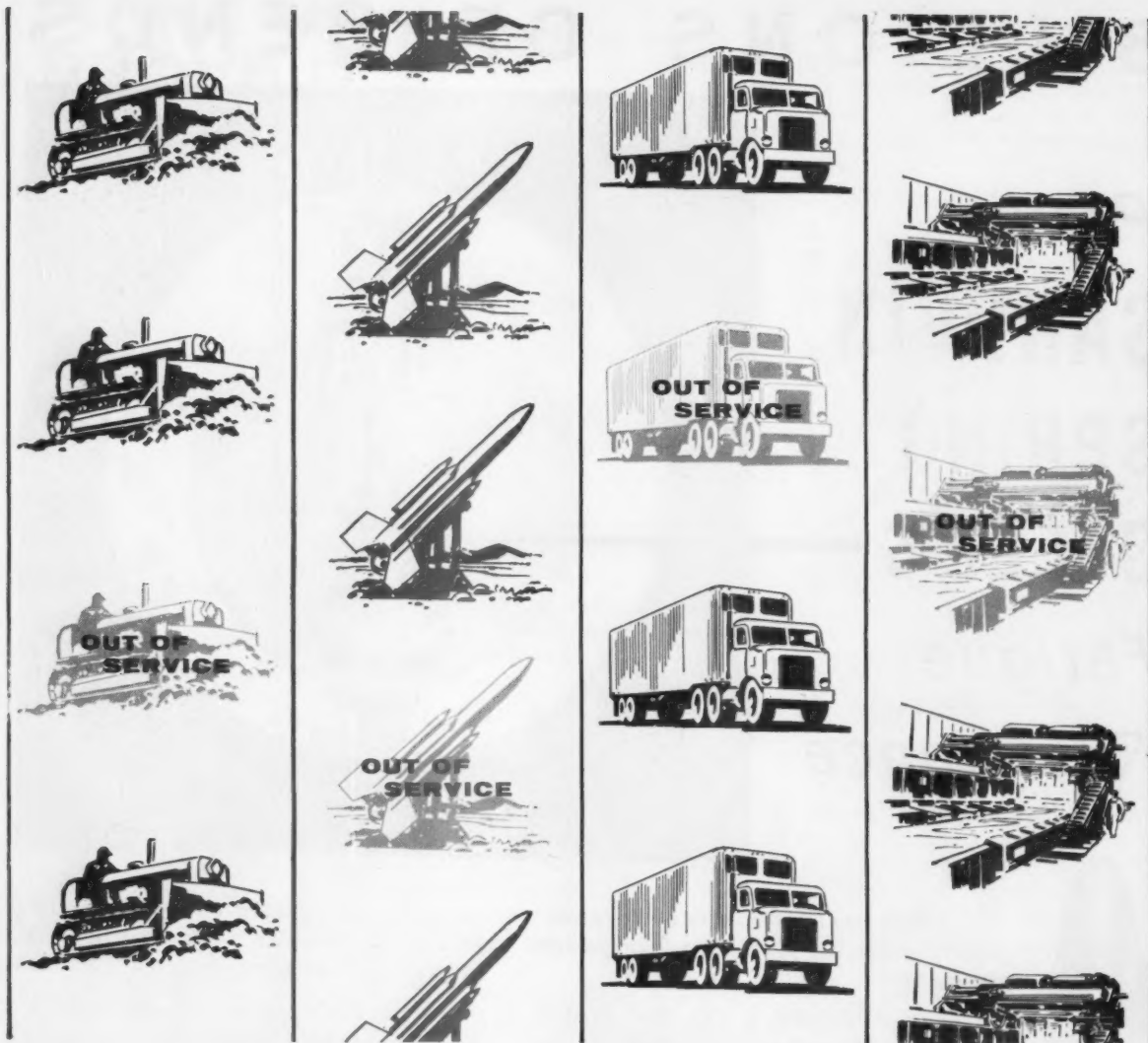
1702 Nevins Rd., Fairlawn, N. J.

- ☐ Please send me further information on Sandvik Steels.
☐ Please have your representative phone for an appointment.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____



Dependable ROLLWAY BEARINGS help keep your down-time low

When a bearing "goes", your machine stops.

That's why it pays to call in Rollway. Especially when reliability is a must.

At Rollway, you can choose from a wide selection of sizes and types with maximum capacities . . . for normal, low or high temperature operation. All meeting or exceeding RBEC requisites in Classes 1 to 5.

You'll find that Rollway meets your needs exactly — in commercial grade, precision, or ultra-precision bearings. To get the bearing you want in a hurry, or to start R and D on the bearing you've been dreaming about, just call or write Rollway Bearing Company, Inc., Syracuse 1, New York.

**Where So Much Depends
on So Little . . .
You can depend on**



**ROLLWAY
BEARINGS**

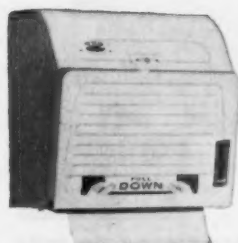
Radial and Thrust Cylindrical Roller Bearings

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Seattle • Houston • Philadelphia • Los Angeles • San Francisco

For More Facts Write No. 228 on Information Card—Page 32



When towels come one at a time they all get used



NEW Steiner Serva-Matic dispenser delivers one unfolded paper towel at a time. No buttons, cranks, levers or tear off required.

A few seconds will elapse before the next towel comes out of this Steiner automatic dispenser. Means the first towel will be used before the second can be taken. When this happens every time someone dries his hands you can see the result: Fewer towels are used . . . waste is reduced . . . towel costs go down (as much as 30%). All Steiner cabinets have an adjustable control you can set to dispense towels at the rate you want . . . at the best rate to keep washroom traffic moving and to keep employees and customers satisfied. For details write . . .



STEINER COMPANY

Dept. 60-5, 740 Rush Street • Chicago 11, Illinois

Products

Power Package Converts Battery to A-C Source



An electronic development provides 110 volt a-c power from a 12 volt storage battery. Unit can be used to operate electric hand tools, lights, and appliances. Packaged unit comes in four models with outputs from 150 to 500 watts. It may also be used as fast or slow charger for 6 and 12 volt batteries. Fully transistorized device has no moving

parts or vibrators. The Electric Storage Battery Co., Dept. G., P.O. Box 6266, Cleveland 1, Ohio.

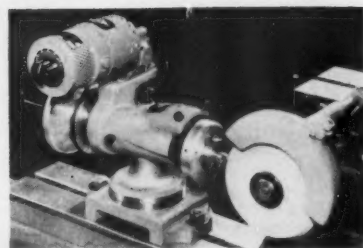
Write No. 33 on Information Card—Page 32

Silicone Rubber Comes In Aerosol Spray Form

A liquid, room temperature vulcanizing silicone is being marketed in aerosol spray form. It has good physical and electrical properties; is resistant to many solvents and to temperatures from minus 65 deg F to 600 deg F; is unaffected by ozone; has its own built-in release agent; and exhibits good bonding ability. Cure time varies from 15 min. to several hours. Supply is now limited to red liquid silicone rubber, with a white compound expected soon. Uses include applying a thin, uniform encapsulating coating on electronic assemblies and parts as well as a spray coating for easy release for molded plastic parts. General Electric Co., Silicone Products Dept., Waterford, N. Y.

Write No. 34 on Information Card—Page 32

Grinding Fixture Serves Two Purposes



A dual purpose grinding fixture is designed for cam-relief grinding and high-precision drill point sharpening. Unit makes possible the most advanced, accurate grinding of drill points plus the simplest approach to cam-relief shaping and sharpening of a variety of tools. One cam is employed for right and left hand operation and is infinitely adjustable and unlimited as to number of flutes. As a drill joint grinder, range covers 128 sizes from #80 through 1-1/32 in. Harig-Steptool Co., Div. of Harig Mfg. Corp., 5757 W. Howard St., Chicago 48, Ill.

Write No. 35 on Information Card—Page 32

COES KNIFE CO.
Your source of:
MACHINE KNIVES

Standard and special blades of solid or composite steel, for all machine knife applications.

COES MICRO GROUND

MACHINE WAYS

Hardened-and-ground steel ways, guides, and wear plates in sizes and shapes to meet your specifications.

COES KNIFE COMPANY
70 COES ST., WORCESTER, MASS.

For More Facts Write No. 230 on Information Card—Page 32



PLASTIC EXTRUSIONS...ANY SHAPE OR SIZE

ACE is one of America's leading mass producers of plastic extrusions and all types of precision parts. Any shape, form or color. Any type of plastic. Small runs or large runs. Huge stocks for immediate delivery. Quick, low-cost service on specials. Write, wire or call for samples, price lists and technical bulletins.

SINCE 1934
EXTRUDERS
A
FABRICATORS

ACE PLASTIC COMPANY 91-34 VAN WYCK EXPWY - JAMAICA 35, N. Y.
For More Facts Write No. 231 on Information Card—Page 32

For More Facts About Ad
on Facing Page Write in No. 232—>



IT HAS BEEN SAID OF
PURCHASING MEN THAT THE MOST
IMPORTANT INFORMATION
THEY MUST HAVE IS

**“WHO ARE YOU
AND WHY SHOULD
I BUY FROM YOU?”**

**WOLVERINE TUBE
ANSWERS IT THIS WAY**

“We’re WOLVERINE TUBE . . . manufacturers of quality controlled seamless drawn and extruded aluminum tube.

We’ve been in business since 1916. We are tubing specialists—devote our entire facilities and energies to the production of one product—the very finest of tubing. Our customers are found wherever quality tubing is used, and we’re proud of our complete tubing line and our reputation for product excellence and business integrity.

We want to sell *you* tubing made the TUBEMANSHIP way.

MAY WE HAVE YOUR NEXT ORDER?”



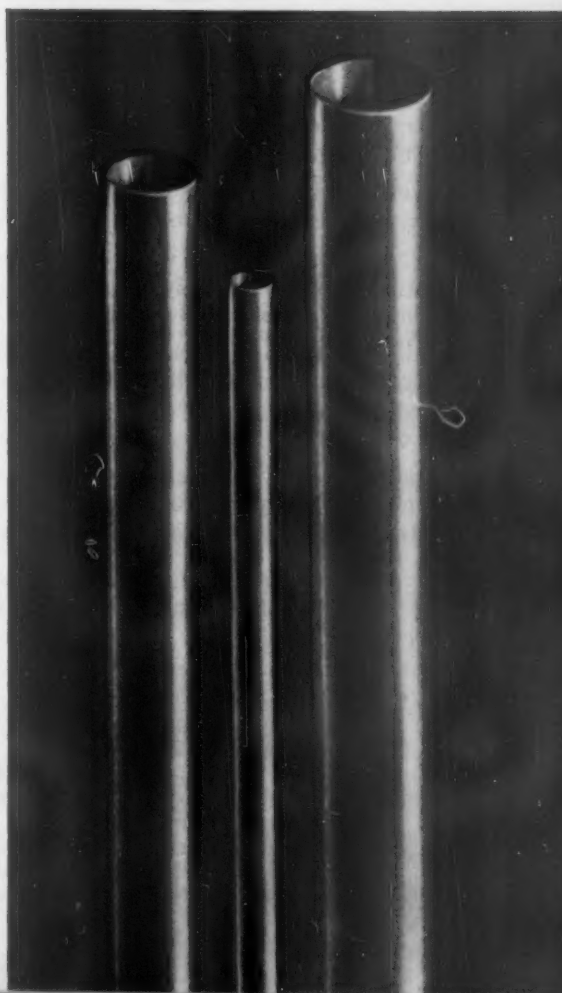
WOLVERINE TUBE

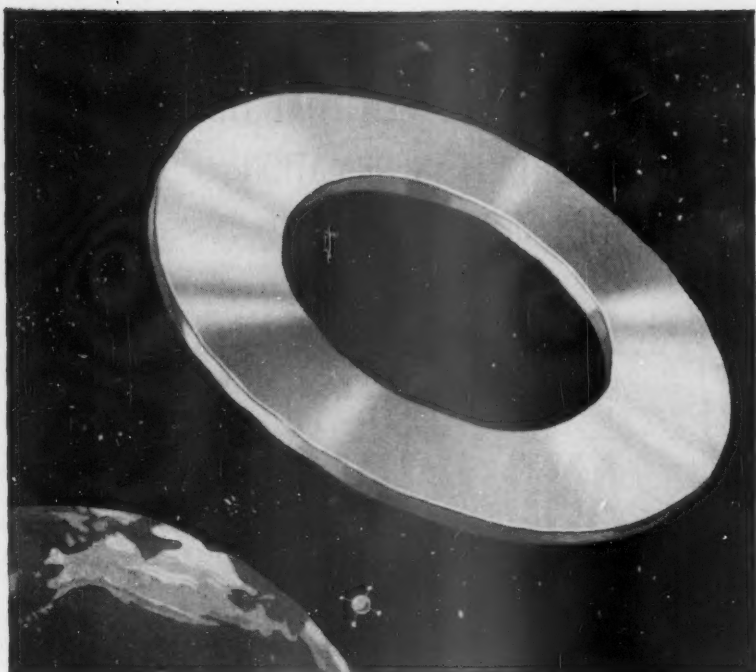
DIVISION OF

Calumet & Hecla, Inc.

DEPT. K, 17250 SOUTHFIELD RD., ALLEN PARK, MICH.
Manufacturers of Quality Controlled Tubing

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA
SALES OFFICES IN PRINCIPAL CITIES





WASHERS

ALSO HAVE THEIR PLACE IN SPACE

After almost 75 years of experience in one line of business . . . *washers and stampings* . . . we are more sure than ever that we haven't seen everything under the sun.

While often we don't know where our products go, or in what end product or device they are used, we're pretty sure some are out in space.

We do know, however, that when industry needs pre-washed, clean, rust-resistant and extremely durable washers of any conceivable type, ours offer decided advantages.

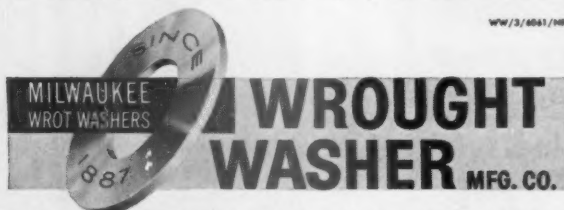
We believe, also, that purchasers and specifiers will be interested to know that we have in stock some 129,000 sets of dies . . . accumulated over these many years. We offer you the widest possible range of selectivity, when you need standards or specials.

Milwaukee Wrot Washers are the world's largest seller. They have to be good. When you order washers of any type (standards or specials) or want prompt quotations, let us help you.



PURCHASING PERSONNEL . . . Free samples available. Request on your letterhead, mentioning types of washers your company uses most frequently.

www/3/60A1/00P

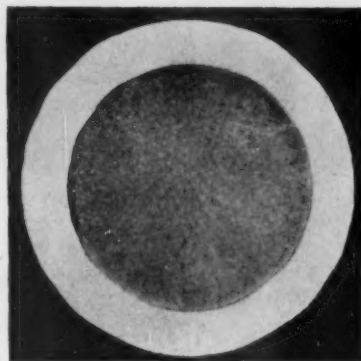


2101 S. BAY ST., MILWAUKEE 7, WIS. • Sheridan 4-0771 • twx MI 277
WORLD'S LARGEST PRODUCER OF WASHERS

For More Facts Write No. 234 on Information Card—Page 32

Products

Aluminum-Coated Steel Wire Has Many Uses



Aluminum-coated steel wire is intended to complement copper-coated steel wire in the communications field and to have applications in other fields where strength, electrical conductivity and corrosion resistance—or a combination of these properties—are required. Solid phase bond is established between aluminum and steel that permits drawing and fabricating. Wire has been produced with aluminum coating of 20 to 60% of total cross sectional area. This gives electrical conductivity of 20 to 40% of equivalent sizes of copper wire, and an even wider range of coating thickness may be practical. **National - Standard Co., Niles, Mich.**

Write No. 36 on Information Card—Page 32

Refuse Handling Unit Performs Double Duties



A refuse-container handling unit for use with the Dempster-Dinosaur permits unit to serve as complete system for both heavy materials handling and general refuse handling. (Please turn to page 132)

For More Facts About Ad on Facing Page Write No. 235→

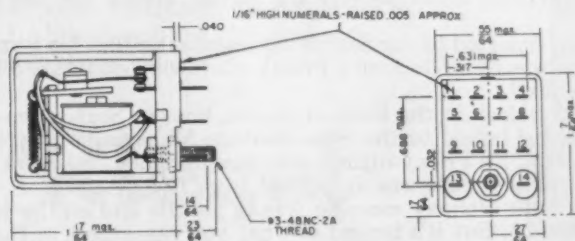
important
P & B re

having rare longevity

But that's far from all. This is a *small* relay . . . about a one inch cube. This relay is easy to install using the conveniently spaced solder lugs or a socket. Thus you save time and production costs. This relay is versatile . . . its 4PDT contacts will switch loads from dry circuit up to 3 amperes. This relay—well, why not order samples and see for yourself! Order today from your P&B representative or call us at Fulton 5-5251, in Princeton, Indiana.

CONTACTS:
Arrangement: 4 Form C, 2 Form Z.
Material: $\frac{3}{16}$ " dia. Silver standard. Silver cadmium oxide and gold alloy available.
Rating: 3 amps @ 30 volts DC or 115 volts AC resistive for 100,000 operations.
COILS:
Resistance: 11,000 ohms max.
Temperature: Operating Ambient: -45°C . to $+70^{\circ}\text{C}$.
Power: 0.5 watts min operate @ 25°C . 0.9 watts nom. @ 25°C . 2.0 watts max. @ 25°C .

INSULATION RESISTANCE: 1500 megohms min.
DIELECTRIC STRENGTH:
 500 Volts RMS 60 cycles between contacts.
 1000 Volts RMS 60 cycles between other elements.
MECH. LIFE: In excess of 100 million cycles.
SOCKET: Solder lug or printed circuit terminals.
 Available as accessory.
DUST COVER: Standard.
TERMINALS: Solder lug and taper tab.



DIVISION OF AMERICAN MACHINE & FOUNDRY COMPANY • PRINCETON, INDIANA
IN CANADA: POTTER & BRUMFIELD, DIVISION OF AMF CANADA LIMITED, GUELPH, ONTARIO



Do all your suppliers work *week ends* for you?

A lot of suppliers *talk* about delivery and service. Here's just one example of what we *do*.

When a P.A. reported to our Seattle representative that his firm* had an equipment failure, it was five o'clock on a Friday afternoon. 500 feet of 5-KV copper cable were needed—fast!

It was eight o'clock in the East, of course, but our Seattle rep called the home office anyway. He talked to the Sales Service Manager, who tracked down the Traffic Manager at his Friday-night bowling game. They both went to work, and by 11:00 that night the order was assembled from Rome's stock. It was shipped by plane and by 7:30 Monday morning was in Seattle and on the job.

Unusual? Maybe. But it's typical of what you can expect in the way of service when you meet your copper wire and cable requirements through any of Rome's 500 distributors.

*Name furnished on request

For information about our broad line of products, write for Bulletin RCP-200, "Guide to Representative Wire, Cable and Conduit." Address inquiries to Rome Cable Division of Alcoa, Dept. 14-31, Rome, New York.



ALCOA
ROME CABLE
DIVISION



Rome Cable Division supplies
ALUMINUM WIRE AND CABLE
COPPER WIRE AND CABLE
ALUMINUM BUS CONDUCTOR
ALUMINUM CONDUIT



"100% MORE WEAR AND THE GLOVES COST 10¢ LESS...WE NOW USE RIEGEL LEATHER PALMS"



Big Hickory in billet mill. Above: calipering. Below: removing cobble.

Here Are The Facts!

COMPANY: A Southern Steel Manufacturing Plant

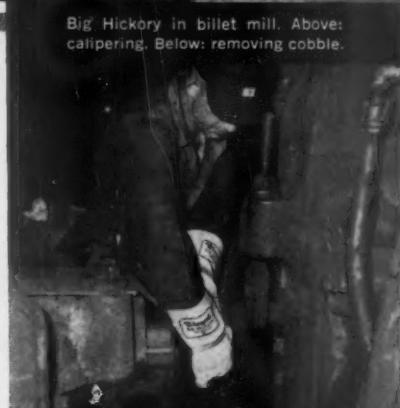
GLOVE PREVIOUSLY USED: Competitor's Leather Palm

GLOVE RECOMMENDED: Riegel Big Hickory™ (gauntlet) and Little Hickory™ (safety cuff) wing-thumb leather palms.

SAVINGS: "Each man now uses four pairs a month, instead of eight, at 10¢ less per pair. This saves \$58 a year per man."

COMFORT: "More flexible and better fit, partly due to wing thumb which former glove did not have. Riegel gloves are also cooler around 2000°F heat and softer around water."

Here is another saving made possible because Riegel Industrial Analysts fit the right glove to the job. For help in reducing your glove cost, call or write Riegel today.



Write for valuable FREE GLOVE GUIDE

A wealth of information: styles, types, materials, chemical resistance, case histories, and more.



Riegel

Glove Div. • RIEGEL TEXTILE CORP. • Conover, N. C.

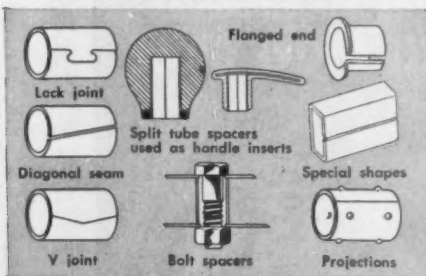
SALES OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES



with **WAGNER SPACERS**

Take another look at the components where you are now using screw machine parts, welded and seamless tubing, or iron pipe. Cost saving applications for Wagner spacers is unlimited... like the large spacer (shown above) which has inward projections at six points to hold the large shaft bearing in alignment... or the tiny spacer at right, similar to thousands we supply to electric appliance manufacturers to save the cost of screw machine parts. Let our engineering department analyze your requirements now... they are backed with over 60 years of experience and modern high speed facilities to produce at low cost!

Wagner spacers are available in: Lengths from 7/32" to 7"; I. D. from .100 to 2-1/16"; O. D. from .140 to 2-1/4"; Wall thickness .020 to .187. We also make a wide variety of spacers with special features (as shown below) in brass, stainless steel, aluminum and steel!



spacers for every application
write -- no obligation

E. R. WAGNER
manufacturing, inc.

4617 N. 32nd Street
Milwaukee 9, Wisconsin

For More Facts Write No. 237
on Information Card—Page 32



Products

(Continued from page 128)

use collection and disposal. "Dinomaster" consists of compaction body and two cab-clearance lifting arms mounted on standard Dinosaur frame. When pulled up on skid frame and locked in place, it lifts refuse container and empties contents into compaction body where packer pluate compresses it with 60,000 lb. thrust. When this operation is completed, "Dinomaster" can be disengaged from Dinosaur chassis which is then free to perform other operations in plant, handling large containers of heavier, bulkier waste products, etc. **Dempster Brothers, Knoxville, Tenn.**

Write No. 37 on Information Card—Page 32

Plastic-Impregnated Gloves Wear Longer



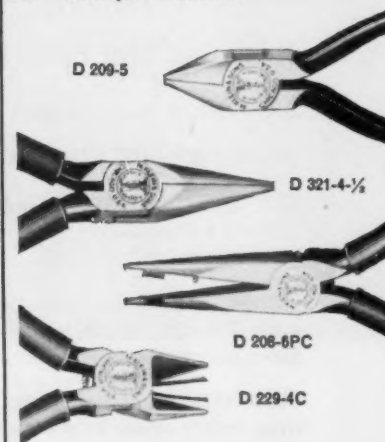
Plastic-impregnated work gloves outwear canvas gloves several times yet retain unusually high finger dexterity. Gloves are made from napped cloth impregnated on one side with polyvinyl chloride. Plastic impregnation provides high wear and snag resistance and firm gripping surface. Seam-free napped cloth on inside promotes wearer comfort. Gloves are particularly useful where sharp edges or snagging are encountered, as in handling metals, glass, brick, stone, lumber, etc. They are not moisture or oil repellant, but they show less absorption than untreated cloth gloves. They may be washed repeatedly. **Jomac, Inc., 6128 N. Woodstock Ave., Philadelphia, Pa.**

Write No. 38 on Information Card—Page 32



A WIDE RANGE OF **KLEIN PLIERS** FOR EVERY **ELECTRONIC NEED**

Every wiring job demands a plier specifically designed for that particular service. In the Klein line is a plier exactly suited for every wiring job. Not only is assembly speeded up, but a better job is assured.



Shown here are a few of the many electronic pliers available in the complete Klein line.

CATALOG FREE ON REQUEST.

Write for Catalog 103-A illustrating and describing the complete line of Klein Pliers.



ASK YOUR SUPPLIER

Foreign Distributor: International
Standard Electric Corp., New York



Mathias KLEIN & Sons
(Established 1883)

7200 McCormick Road, Chicago 45, Ill.

For More Facts Write No. 238
on Information Card—Page 32
For More Facts About Ad
on Facing Page Write in No. 239→



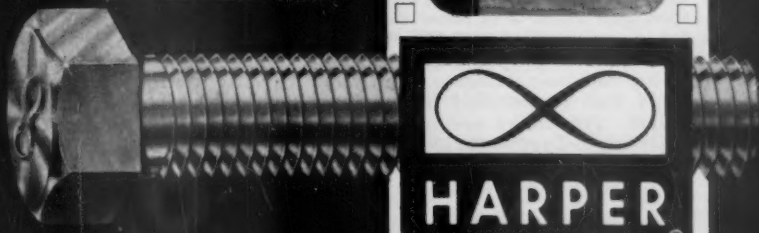
extruding stainless steel is a new technique . . .

The successful extrusion of Stainless Steel, Carbon and Alloy Steels, and Super Alloys by Harper opens new horizons that are limited only by the imagination. With an endless variety of configurations possible, industrial designers and metallurgical engineers can now take advantage of low initial die costs, material savings and reduced costs of secondary machining. Experimental runs or long runs—square cut sections or straight and true lengths up to 60 feet—are available . . . backed by thorough metallurgical control from billet casting to finished shapes.

Write for FREE copy of Harper's 12-page Extrusion Folder.

THE H. M. HARPER COMPANY
8200 LEHIGH AVENUE • MORTON GROVE, ILLINOIS

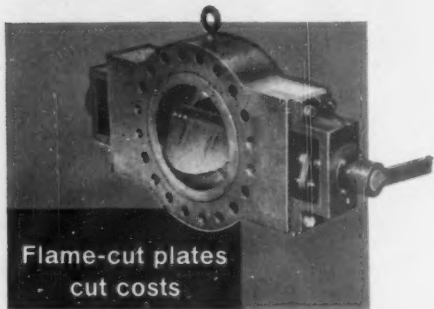
shaping metals
that shape your future



HARPER®



METALLOGICS* IN



HIGH REJECTS: Use of flat steel castings for valve bodies, with I. D. ranging from 4" to 60", accounted for increases in costs for this manufacturer. Pattern costs rose because of numerous changes... rejects were high due to porosity and other casting faults that showed up only after machining.

HIGH QUALITY: Ryerson recommended using flame-cut plates ranging in thickness from 1" to 8". Results: greater production flexibility, faster delivery, lower cost and a stronger product for this high-pressure service. Tight Ryerson quality control delivered plates of exceptionally clean surface to exact thickness of finished product, requiring little machining.



PLATES REQUESTED: Ryerson was asked to bid on supplying 1/4" Type 410 stainless in 27 1/2" square plates. Material was to be used for orifice plates for 16" burner, subjected to elevated temperatures.

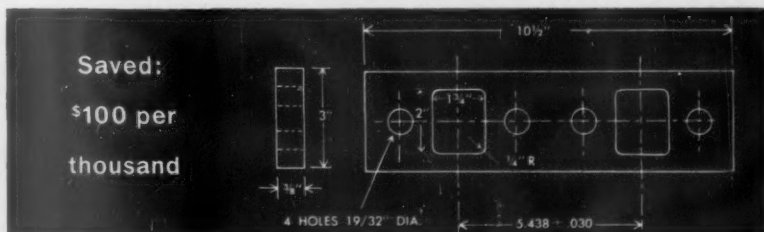
RINGS RECOMMENDED: Going beyond material specs, the Ryerson representative found that the customer intended to cut plate into 27 1/2"-diameter rings with 13.120" bore—and then mill 12 slots in outer diameter for expansion relief. Knowing the application, Ryerson recommended supplying machine-cut rings in which slots could then be punched rather than milled. Production savings enabled switching to Type 304 at less cost than Type 410 with slots milled.

Look at these random examples and see how Ryerson Metallogics sparks real savings by continually searching for and suggesting new materials, methods and techniques.

The broadest experience anywhere combines with the widest range of stocks available to offer you unbiased recommendations on the best material for any job—be it steel, aluminum or plastics. Always the right metal-fabricating machine, too—for Ryerson is the nation's largest distributor.

Your Ryerson representative is "Metallogics-trained" to help you *value-analyze* selection, fabrication and application problems. Get his constructive ideas soon, and see how he can help you select and apply material from our vast stocks. It's the "Metallogical" thing to do.

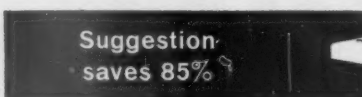
**The Ryerson science of giving optimum value for every purchasing dollar.*



PROBLEM: Muffler manufacturer required accurately finished mounting plates made from 3/8" x 3" bar. Cutting bars to size, burning 1 1/4" x 2" holes and drilling four 19/32" holes proved time-consuming and expensive.

SOLUTION: Ryerson recommended

that they eliminate cutting, burning and drilling operations by stamping the part from Ryerson forming-quality plate. One operation instead of three cut costs \$100.00 per thousand pieces and quickly justified the small initial investment in dies.



ASKED FOR: Customer wanted 1" hot rolled plate to cover about 80' of 24" open trench. Plate was to be cut into 24" x 27" segments—each containing 900 3/8" holes to filter the product.

RECOMMENDED: After studying

application and cost, Ryerson recommended a design combining perforated light plate, formed to channel shape, and grating for structural support. Ryerson experience and imagination saved 85% of the original cost.

Soft touch on fabricating sheets

THE NEED: Cold rolled sheets that would take severe forming and retain smooth, dull surface for high lacquer finish. Sheet quality was found on inspection to vary widely from one shipment to the next, causing variations in forming and finishing operations... high reject rate.

THE ANSWER: The Ryerson representative showed how our stringent quality controls would assure consistent quality on every shipment so that forming and finishing could be standardized for better results... lower production cost figures.



ACTION

Production
upped 30%



BEFORE: Job shop was using MT 1015 tubing in the manufacture of this coupling. Machinability was satisfactory, but rising costs of operation led to a search for ways to economize.

AFTER: Careful study by the Ryerson representative brought about a change in material. He recommended using Ledloy® 170 tubing, which increased machining speed to 170 s.f.m. and stepped up production 30%. Ryerson's stocks include the widest range of fast machining alloys—types and sizes to fit your every need.

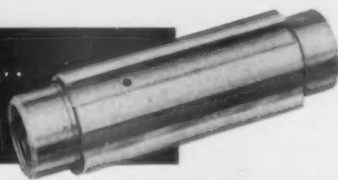
PVC
cuts costs 50%



OLD WAY: A screw machine shop used nylon in the manufacture of nipple adapter and coupling nuts—until a Ryerson representative came on the scene.

NEW WAY: At his suggestion, they changed to Ryertex-Omicron PVC—cut costs 50%. PVC machined better—to closer tolerances, with improved finish . . . ran faster without "gumming." Note exact cutting of threads and barbs. Threads fit perfectly.

Deeper cut...
better
finish



SEARCH: Complicated machining of a carbide grade gear shaft included cuts up to 1/4". It was discovered that required machining was too slow with the steel chosen for the job.

ANSWER: Rycut® 40 was recommended by the Ryerson representa-

tive. This free machining alloy fit the situation perfectly. The company found that Rycut 40 machined at 250 s.f.m., gave a better finish, increased tool life, and lowered total per-piece cost. An alloy in the Rycut series may well lower your costs.

New
material,
method and
results



OLD: Rows of vertical aluminum grid members were attached to an aluminum base plate by notching the grid members and welding. (2024-T3 aluminum plate was used.) However, upon cooling, welds fractured—causing a high reject rate on this assembly.

NEW: A Ryerson representative sug-

gested undercutting the base plate (as shown) instead of the grid members. This exposed a greater area to heat and permitted a larger deposit of weld material. Another Ryerson suggestion: change material to 5052-H34 aluminum, which responds better to welding operations.



Longer-
wearing
bearing

5-DAY LIFE: The sheaves that guide the enormous digging buckets of underwater dredges take a very severe load. Bronze bearing in the sheaves had to be replaced every four or five days.

5 MONTHS, SO FAR: After discussing the problem with a Ryerson man, the chief engineer decided to try a bearing made of Ryertex. The change was made, and five months later hardly any wear was noticeable! With its low friction coefficient, Ryertex is nonbinding, even on itself.

2 metalworking machines
for the price of 1

A fabricator of stainless steel kitchen equipment was recently in the market for a new squaring shear. The one under consideration had a gap-type frame which would enable him to do an important notching operation—necessary for certain sink tops. After careful study, a Ryerson machinery specialist recommended two pieces of equipment instead of one at no increase in total cost. The first, an under-driven shear. The second, a universal-type sheet metalworking machine that would do the required notching, plus many other jobs—adding versatility to the entire operation.

PRODUCTS IN STOCK

STEEL—carbon, alloy, and stainless steel—bars, structurals, plates, sheets and strip, tubing, etc.

ALUMINUM—sheet (including new building sheet), plate, coils, rod and bar, tubing and pipe, building products, etc.


INDUSTRIAL PLASTICS—Ryertex-Omicron PVC in all forms. Also Ryertex® laminated phenolic plastics for bearings.

METALWORKING MACHINERY—the broadest line available from a single source for every kind of metal fabrication. Also specialized line of material handling equipment.



STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

RYERSON STEEL®

Joseph T. Ryerson & Son, Inc., Member of the  Steel Family

PLANT SERVICE CENTERS: BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT • HOUSTON • INDIANAPOLIS
LOS ANGELES • MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • SPOKANE • WALLINGFORD

For More Facts Write No. 241 on Information Card—Page 32

MARCH 13, 1961

135

New Computer Cuts Programming Time

COMPUTER manufacturers agree that getting "the problem" into the machine is the biggest obstacle for users. Computer instruction—or programming—is usually a ponderous task, requiring knowledge of complex numerical codes. The writing of one program could easily tie up highly trained specialists for three, four, and even five months.

An answer to this problem was recently provided by Burroughs Corporation, Detroit, Mich. A new solid state electronic data processing system that departs from traditional concepts of computer design was developed to cut programming time.

Known as the B5000, the system will reduce programming costs because it was specifically designed to accept programs written in algebra for scientific and engineering problems or in English for business data processing.

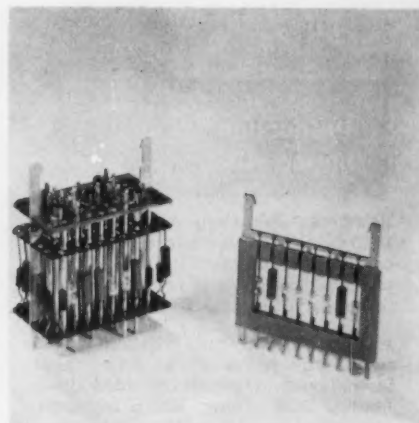
The built-in ability to process programs written in Common Business Oriented Language

(COBOL) and Algorithmic Language (ALGOL) will be standard with every B5000 computer system.

Ray R. Eppert, Burroughs president, says that "Computer engineering technology in providing high internal machine speeds far outstripped the ability to use this speed efficiently. And every time the speed was increased, it became even more difficult to communicate with the computer."

Development of two common languages is enabling man to talk to these intricate machines in familiar algebra (ALGOL) and English (COBOL). ALGOL was formulated in 1958 by an international group of logicians, mathematicians, and computer experts. It allows commands to be expressed in pure algebra, the mathematician's natural problem-solving language. COBOL, still under development, is designed as a common language for business data processing.

The modular construction of

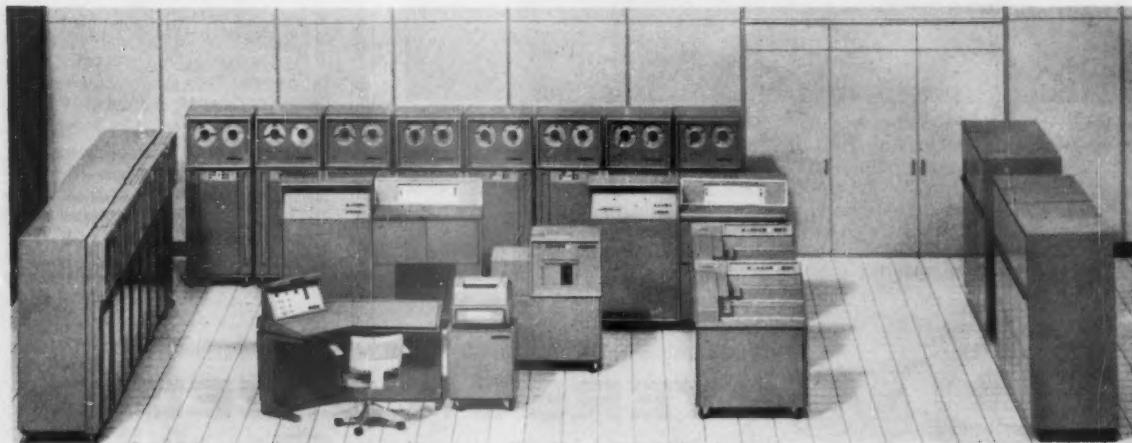


Standard plug-in units for the Burroughs solid state computer are tiny transistorized packages.

the B5000 will permit system upgrading. Computer users will find the system compatible with present equipment. They will be spared the massive and costly job of reprogramming when a system is expanded or changed. This feature also makes it possible for computer users to exchange programs as well as ideas.

The B5000 computer system will rent from \$13,500 to \$50,000 a month, depending on the size of the system. Purchase price is pegged at a starting point of \$500,000. First deliveries are expected in late 1962.

Write No. 19 on Information Card—Page 32



The computer system takes data in English and algebra instead of intricate numerical codes. Scale models of a maximum system are shown here.



ART METAL

introduces its comprehensive 500 Group.

The first fully coordinated series of
metal desks, chairs, files and cabinets.



The 500 Group offers the flexibility and versatility found in custom installations, combined with mass-production economy. In this executive grouping: cherrywood tops, black cases, polished chrome finish.

ART METAL 500 GROUP

The 500 Group is the first fully coordinated and comprehensive series of metal desks, chairs, files and cabinets. The extensive range of colors and sizes in basic and complementary units provides a flexibility of function and appearance never before available. The 500 Group has been designed for Art Metal by the Knoll Planning Unit. It is produced with the quality of detail and technical skill which have become synonymous with the Art Metal name in over seventy years of service and progress. The Art Metal dealer nearest you, listed on one of the following pages, will be glad to show you representative pieces of the new series and to give you complete details about it.

The 500 Group is also available through Art Metal Branch Offices in Boston, Chicago, Detroit, Hartford, Los Angeles, Newark, New York City, Philadelphia and Pittsburgh.



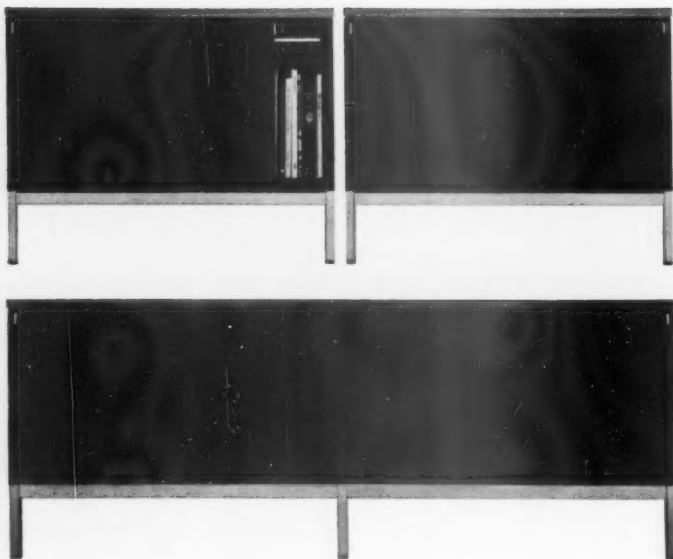
Attractive, efficient, this secretarial work-station is composed of elements from the coordinated series of desks, chairs, files and cabinets.



Cabinets are available in several sizes, with 7 top finishes, 5 colors and 2 metal finishes. Drawers, shelves are planned to suit function.



Basic desk shown here is identical to the one on the facing page. Flush top and different case color create an entirely different appearance.



ART METAL 500 GROUP

36-, 60- and 72-inch cabinets are available. All are 27 1/2 inches high, 18 inches deep.

ALABAMA

THE RE-PRINT CORP.
ANDERSON OFFICE EQUIPMENT
IVAN ALLEN
MONROE BUSINESS EQUIPMENT
POWERS COMPANY, INC.

ARIZONA

CLARK OFFICE SUPPLY & EQUIPMENT COMPANY, INC.
OLD PUEBLO OFFICE SUPPLY COMPANY

ARKANSAS

EL DORADO PRINTING & STATIONERY
DEMOCRAT PRINTING & LITHO. CO.

CALIFORNIA

KERN OFFICE SUPPLY & EQUIPMENT CO.
SIERRA STATIONERS
DUDEK OFFICE EQUIPMENT, INC.
HEALEY & CO.
GILL'S OFFICE SUPPLY & EQUIPMENT CO.
JOHN'S BUSINESS EQUIPMENT
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HUNTSVILLE
MOBILE

PHOENIX
TUCSON

EL DORADO
LITTLE ROCK

BAKERSFIELD
CHICO
EUREKA
FRESNO
LONG BEACH
ONTARIO
PASADENA

CALIFORNIA (Continued)

SIERRA STATIONERS
M. G. WEST COMPANY
STANDARD STATIONERS
W. K. DAVIS COMPANY
AUSTIN SAFE AND DESK CO.
M. G. WEST COMPANY
M. G. WEST COMPANY
BALES OFFICE EQUIPMENT CO.
DENNETT & DENMUN BUSINESS MACHINES COMPANY
SUNSET OFFICE EQUIPMENT CO.
MORRIS BROTHERS

COLORADO

OUT WEST PRINTING & STATIONERY COMPANY
BETHUNE & MOORE
BUSINESS FURNITURE COMPANY
RICHARDSON OFFICE SUPPLY CO.

CONNECTICUT

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REDDING
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SALINAS
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SAN DIEGO
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SAN JOSE
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SANTA MONICA
STOCKTON

CONNECTICUT (Continued)

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JOSEPH F. YATES, STATIONERS
WALTER N. BLOCK & SON
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DISTRICT OF COLUMBIA

CHAS. G. STOTT & CO., INC. WASHINGTON, D.C.

FLORIDA

R. E. WILKERSON & CO.
BYRON OFFICE FURNITURE
THE OFFICE EQUIPMENT COMPANY, INC.

GEORGIA

IVAN ALLEN

HAWAII

HONOLULU PAPER CO., LTD.

IDAHO

FISHERS, INC.

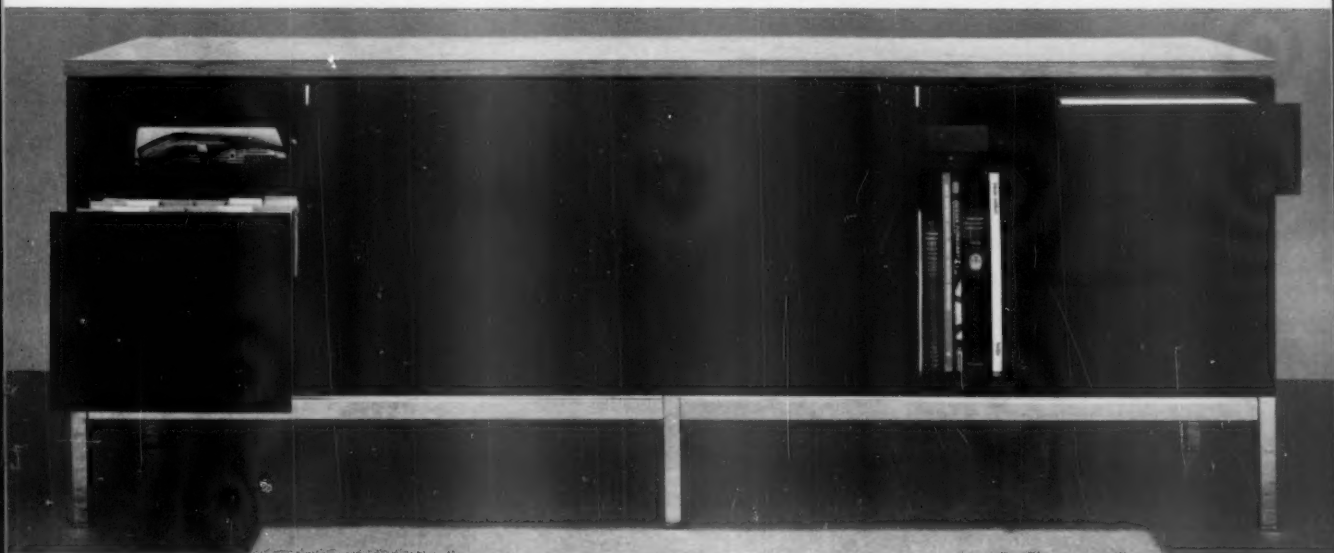
HARTFORD
NEW HAVEN
NORWICH
PORTLAND
STAMFORD
WATERBURY

JACKSONVILLE
MIAMI
TAMPA

ATLANTA

HONOLULU

BOISE



Cabinet doors slide open easily to allow access to drawers and shelves which may be arranged in a variety of ways to meet individual needs.

ILLINOIS

OFFICE MACHINE EXCHANGE
HIGHLAND INTERIORS AND SUPPLIES
TWIN CITY PRINTING COMPANY
IDEAL OFFICE SUPPLY
KRILOFFICE, INC.
THE MONROE FURNITURE CO., INC.
RIHA, PETERSON & VAIL
ROSSITER OFFICE MACHINE SERVICE
BUSINESS EQUIPMENT COMPANY
FISHER BUSINESS EQUIPMENT
HAINES & LYFORD OFFICE EQUIPMENT CO.
CENTRAL OFFICE EQUIPMENT COMPANY
STERLING BUSINESS MACHINES
NATIONAL OFFICE SUPPLY CO.

INDIANA

THE STATIONERS
GUTHRIE'S OFFICE EQUIPMENT CO.
SHREX OF FT. WAYNE
STATIONERS INC.
LAFAYETTE OFFICE SUPPLY, INC.
OFFICE SUPPLY & EQUIPMENT CO., INC.

ALTON
AURORA
CHAMPAIGN
CHICAGO
CHICAGO
CHICAGO
CHICAGO
DECATUR
PEORIA
QUINCY
ROCKFORD
SPRINGFIELD
STERLING
WAUKEGAN

ELKHART
EVANSVILLE
FT. WAYNE
INDIANAPOLIS
LAFAYETTE
SOUTH BEND

INDIANA (Continued)

MID-WEST OFFICE SUPPLY CO.
WABASH OFFICE SUPPLY CO.

IOWA

MORRIS SANFORD COMPANY
STOREY-KENWORTHY CO.

KANSAS

JUNCTION CITY OFFICE SUPPLY
CENTRAL TYPEWRITER CO.
COMMERCIAL OFFICE SUPPLY CO.

KENTUCKY

GRANT'S OFFICE SUPPLY
STANDARD OFFICE FURNITURE & SUPPLIES

LOUISIANA

DAMERON-PIERSON
DIXIE OFFICE SUPPLIES
J. C. ROBERTS OFFICE SUPPLY CO.
DAMERON-PIERSON
RUSTON OFFICE & PHOTO SUPPLY

TERRE HAUTE
WABASH

CEDAR RAPIDS
DES MOINES

JUNCTION CITY
SALINA
TOPEKA

HENDERSON
LOUISVILLE

BATON ROUGE
LAFAYETTE
LAKE CHARLES
NEW ORLEANS
RUSTON

LOUISIANA (Continued)

THE DRAKE COMPANY

MAINE

BANGOR OFFICE SUPPLY

MARYLAND

THE KOCH OFFICE SUPPLY COMPANY

MASSACHUSETTS

CONTRACT SALES, INC.
H. M. MESERVE COMPANY, INC.
OFFICE PLANNING & EQUIPMENT CORP.
E. P. GOWDY, INC.
A. R. REID
G. E. STIMPSON CO., INC.

MICHIGAN

TYPEWRITER EXCHANGE INC.
SILVER OFFICE SUPPLY CO.
TYPEWRITER EXCHANGE
BALL OFFICE SUPPLY, INC.
DOUBLEDAY BROS. & CO.

SHREVEPORT

BANGOR

BALTIMORE

BOSTON

HYANNIS

LOWELL

PITTSFIELD

SPRINGFIELD

WORCESTER

BAY CITY

DETROIT

FLINT

JACKSON

KALAMAZOO



MICHIGAN (Continued)

WEGER BUSINESS SYSTEMS, INC.
CURTIS-FERRELL CO.
GENERAL PRINTING & OFFICE SUPPLY
SUBURBAN PRINTERS
MARSH OFFICE SUPPLY INC.

MINNESOTA

FARNHAM'S
FARNHAM'S
BURGHER'S

MISSISSIPPI

THE OFFICE SUPPLY CO.
THE OFFICE SUPPLY CO.
THE MACON BEACON

MISSOURI

BYRNE BUSINESS FURNITURE CO.
CLARK PEEPER COMPANY
SHELFMAN'S

LANSING
MUSKEGAN
PONTIAC
ROYAL OAK
YPSILANTI

MINNEAPOLIS
ST. PAUL
VIRGINIA

JACKSON
GREENVILLE
MACON

KANSAS CITY
ST. LOUIS
SPRINGFIELD

MONTANA

REPORTER PRINTING & SUPPLY CO.
TRIBUNE OFFICE SUPPLY
DELANEY'S BUREAU OF PRINTING

NEBRASKA

OMAHA PRINTING COMPANY
ELMER R. KISSACK COMPANY

NEVADA

ARMANKO OFFICE SUPPLY CO.

NEW HAMPSHIRE

KIMBALL'S, INC.
G. H. TILDEN & CO.

NEW JERSEY

ASHLEY McCORMACK
AMERICAN COMMERCIAL EQUIPMENT CO., INC.

ACRO OFFICE FURNITURE CO., INC.
INDUSTRIAL OFFICE SUPPLY CO.
STEVENSON-ROSSITER, INC.

BILLINGS
GREAT FALLS
MISSOULA

OMAHA
SCOTTSBLUFF

RENO

CLAREMONT
KEENE

BRIDGETON
EAST ORANGE

MONTCLAIR
NEWARK
NEWARK

NEW JERSEY (Continued)

HARRY STRAUSS & SONS
SECURITY OFFICE FURNITURE CO., INC.
HOWARD W. BOISE, INC.
BUSINESS SYSTEMS & EQUIPMENT CORP.
H. W. CLOPP

NEW MEXICO

GENERAL SUPPLY COMPANY
PARKER'S, INC.
BUSINESS MACHINES, INC.

NEW YORK

MARTIN BUSINESS FURNITURE, INC.
PIERSONS
ATLANTIC OFFICE & INDUSTRIAL EQUIPMENT CO.

LARSON EQUIPMENT CO., INC.
VERNON M. PAGE, INCORPORATED
J. HERRSCHAFT OFFICE SUPPLY INC.
BECO INTERIORS, INC.
O'REILLY'S OFFICE EQUIPMENT, INC.
ROBINSON & CUNNINGHAM, INC.

NEW BRUNSWICK
PERTH AMBOY
PLAINFIELD
TEANECK
TRENTON

ALBUQUERQUE
FARMINGTON
HOBBS

ALBANY
BINGHAMTON

BROOKLYN
BUFFALO
BUFFALO
HICKSVILLE
JAMESTOWN
KINGSTON
MIDDLETOWN

ART METAL 500 GROUP



These chairs, and other styles not illustrated, are available in a wide range of exciting colors in natural and synthetic fibers and vinyl upholstery.

NEW YORK (Continued)

GOLDEN OFFICE OUTFITTERS, INC.
ZIMMERLI BUSINESS FURNITURE CORP.
NICHOLS BUSINESS EQUIPMENT INC.
VERNON R. EVANS COMPANY
O & G ASSOCIATES, INC.

NIAGARA FALLS
ROCHESTER
SYRACUSE
UTICA
WHITE PLAINS

NORTH CAROLINA

KALE-LAWING CO.
MITCHELL-DIXON OFFICE SUPPLY CO., INC.
STORR SALES CO.
HINKLE'S BOOK STORE

CHARLOTTE
GREENSBORO
RALEIGH
WINSTON-SALEM

NORTH DAKOTA

HEGSTROM'S OFFICE EQUIPMENT CO.

GRAND FORKS

OHIO

PRINZ OFFICE EQUIPMENT
ALLIANCE TYPEWRITER & OFFICE SUPPLY
CINCINNATI OFFICE OUTFITTERS, INC.
DEAN OFFICE EQUIPMENT CO.
VAN KIRK-STALEY MURPHY, INC.

AKRON
ALLIANCE
CINCINNATI
CLEVELAND
CLEVELAND

OHIO (Continued)

FURNITURE DIVISION OF COLUMBUS BLANK BOOK CO.
COLUMBUS
DAYTON
EAST PALESTINE
FINDLAY
HAMILTON
MARIETTA
MARION
PIQUA
TOLEDO
YOUNGSTOWN

OKLAHOMA

SOUTHWESTERN STATIONERY CO.
SOUTHWESTERN STATIONERY CO.
POTT COUNTY BOOK STORE
DOWNS-RANDOLPH CO.

OKLAHOMA CITY
LAWTON
SHAWNEE
TULSA

OREGON

PETER'S OFFICE SUPPLY CO.
COOKE STATIONERY CO.

PORTLAND
SALEM

PENNSYLVANIA

ZOLLER BUSINESS MACHINES
BURNER EQUIPMENT CO.
JACK WILKINSON
BUTLER STATIONERY
SUMNER'S OFFICE EQUIPMENT
COLE & COMPANY
BOYER PRINTING & BINDING CO.
CASTLE STATIONERY CO.
MARX STATIONERY & PRINTING CO.
FRANK WOLF CO., INC.
WARD'S BOOK STORE
THOMAS OFFICE EQUIPMENT CO.
R. R. GREEN AND ASSOCIATES

ALTOONA
BEAVER FALLS
BELLEFONTE
BUTLER
GREENVILLE
HARRISBURG
LEBANON
NEW CASTLE
PHILADELPHIA
PHILADELPHIA
WASHINGTON
WAYNE
WILLIAMSPORT

PUERTO RICO

GONZALEZ PADIN CO., INC.

SAN JUAN

RHODE ISLAND

E. L. MORRIS CO., INC.

PROVIDENCE

SOUTH CAROLINA

JIM HARRIS INC.

COLUMBIA



ART METAL 500 GROUP

Outstanding feature of the new files is recessed drawer pull, incorporated into a single design element with label-holder.

SOUTH CAROLINA (Continued)

IVAN ALLEN
YOUNG OFFICE SUPPLY CO.

SOUTH DAKOTA

MIDWEST BEACH CO.

TENNESSEE

T. H. PAYNE CO.
KINGSFORD OFFICE SUPPLY CO.
ARROW OFFICE SUPPLY CO.
NASHVILLE STATIONERY CO.

TEXAS

SOUTHWESTERN STATIONERY & BANK SUPPLY
SZAFIRS OFFICE OUTFITTERS
PERLER'S OFFICE OUTFITTERS
NEWS OFFICE SUPPLY CO.
TEXAS OFFICE FURNITURE COMPANY
FIELD-PARKER CO., INC.
THE STAFFORD-LOWDON CO.

GREENVILLE
SPARTANBURG

SIOUX FALLS

CHATTANOOGA
KINGSFORD
MEMPHIS
NASHVILLE

AMARILLO
BEAUMONT
BRECKENRIDGE
BRYAN
DALLAS
EL PASO
FORT WORTH

TEXAS (Continued)

MAVERICK-CLARKE
THE LUBBOCK PRINTING COMPANY
THE DEMMER COMPANY
THE HOWARD COMPANY
THE HOWARD COMPANY
THE ORANGE STATIONER
HOLCOMB-BLANTON PRINTER
MAVERICK-CLARKE
GRESHAM'S
BAGLAND OFFICE EQUIPMENT CO.

UTAH

WEBER OFFICE SUPPLY COMPANY
ALLSTEEL OFFICE SUPPLY CO.

VERMONT

McAULIFFE OFFICE EQUIPMENT CENTER

VIRGINIA

BAGLEY STATIONERY CO., INC.
MARTINSVILLE OFFICE SUPPLY, INC.
ALLEN BUSINESS EQUIPMENT, INC.

HOUSTON
LUBBOCK
MARSHALL
MIDLAND
ODESSA
ORANGE
SAN ANGELO
SAN ANTONIO
TEMPLE
TEXARKANA

OGDEN
SALT LAKE CITY

BURLINGTON

HAMPTON
MARTINSVILLE
NORFOLK

VIRGINIA (Continued)

EVERETT WADDEY COMPANY

WASHINGTON

TRICK & MURRAY
JOHN W. GRAHAM CO.
HUNTS OFFICE SUPPLY
YAKIMA BINDERY & PRINTING CO.

WEST VIRGINIA

THE S. SPENCER MOORE COMPANY
STATIONERS INCORPORATED
LAIDLEY & SELBY
KIRBY OFFICE SUPPLY

WISCONSIN

BROSK OFFICE & SCHOOL SUPPLIES
THE PARKER CO.
FORRER EQUIPMENT CO.

WYOMING

PIONEER PRINTING CO., INC.
THE MILLS COMPANY

RICHMOND

SEATTLE
SPOKANE
TACOMA
YAKIMA

CHARLESTON
HUNTINGTON
MORGANTOWN
WHEELING

KENOSHA
MADISON
MILWAUKEE

CHEYENNE
SHERIDAN



Bostitch staplers and staples are made for each other. Our desk staplers always impress people with the way they work. They're rugged and they're well known to be practically trouble-free . . . especially with Bostitch staples. Precisely formed Bostitch staples cost pennies more than some other brands but save dollars in time and efficiency and smooth operation in all kinds of office work.

An office equipped with Bostitch staplers and staples is an efficient office. See the many types available for all kinds of work and the colors that blend with office decor—green, beige, gray and black. A Bostitch Economy Man—one of 350 who work out of 123 U. S. and Canadian cities—will be glad to help you solve office fastening problems. He's in the Yellow Pages.

Fasten it better and faster with

BOSTITCH®
STAPLERS AND STAPLES

723 BRIGGS DRIVE, EAST GREENWICH, R. I.

For More Facts Write No. 243 on Information Card—Page 32

**NO
GOOPY-
"GOO"
in our
BALL PEN...**

Because only the
FINEST INK
will do!

ENGINEERED FOR BETTER WRITING, the superior ink in the new Eagle STICKPEN contains not a single particle larger than one micron in diameter! Ordinary ball pen inks—compared under the microscope—showed particles that exceeded 10 microns! No wonder most ball pens skip, stall and goop. But now you can be sure that your office pens won't . . . by specifying and insisting on new Eagle STICKPEN!

FINEST INK—

Plus All These Extra Quality Features!

- SILVERED TIP FOR "CUSHIONED" WRITING
- PRECISION TURNED BALL SOCKET
- STAINLESS STEEL BALL
- SOLID BRASS (Not Plastic) CARTRIDGE
- SCULPTURED "FINGER-FIT" GRIP
- EACH PEN INDIVIDUALLY TEST-WRITTEN BY HAND

and only

AT ALL
STATIONERS

29¢

MEDIUM POINT
Fed. Tax. Incl.

**EAGLE®
STICKPEN®**
GUARANTEED BY EAGLE RESEARCH

EAGLE PENCIL COMPANY

Headquarters: Danbury, Connecticut

NEW YORK • LONDON • TORONTO • MEXICO • SYDNEY • BOGOTA

146

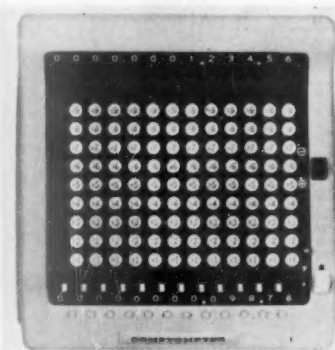
For More Facts Write No. 244
on Information Card—Page 32

Office Equipment



Mechanical innovation in manual office paper cutters has been added to new machines marketed by Michael Lith Sales Corp., 145 West 45 St., New York 36, N. Y. The new feature permits a simultaneous motion that clamps and cuts the paper. It also acts as a safety device in that both hands must be used in operating . . . one on the clamp handle and the other on the blade handle.

Write No. 39 on Information Card—Page 32



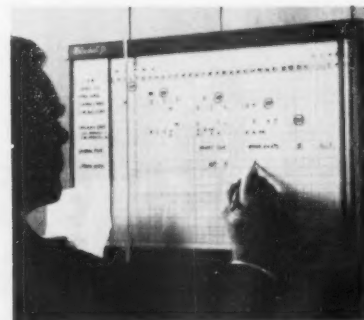
New calculator featuring two answer dials, one of which stores totals, has been announced by Comptometer Corporation, 5600 Jarvis Avenue, Chicago 48, Ill. As in all Comptometers, the new machine operates on the direct action principle with instant results in the answer dial without the operation of other bars or keys.

Write No. 40 on Information Card—Page 32

New pamphlet to help dictating machine users get the most benefit from new magnetic type machines has just been released by

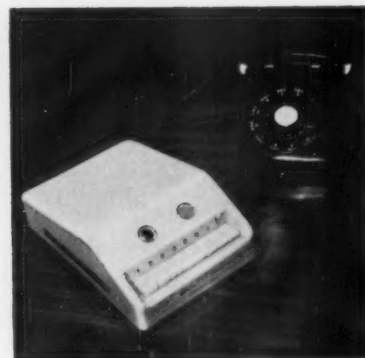
the DeJur-Amsco Corp., Business Equipment Division, 45-01 Northern Blvd., Long Island City, N. Y. The booklet is free and has a special chapter devoted to the transcriber and what she can do to make her job easier.

Write No. 41 on Information Card—Page 32



Portable, light-weight visual control board has been introduced by Conley, Baltzer & Steward, Rol-a-chart Division, 494 Jefferson St., San Francisco, Calif. The new device is a smaller version of the company's larger model; it consists of a stationary index and an endless, transparent, plastic sleeve that moves across a fixed grid. The chart is 14" high and has index space for 40 vertical entries.

Write No. 42 on Information Card—Page 32



A personal call system has been developed by Multitone Electronics, Ltd., 130 Merton St., Toronto, Ontario. It is fully transistorized and provides either speech or private coded signal for a total of 15 people carrying pocket receivers. The new system is operable in areas from 40,000 to 300,000 square feet, depending on the layout of the premises.

Write No. 43 on Information Card—Page 32

PURCHASING



Reuseable plastic adhesive letters and symbols are now available from the **Ozalid Division of General Aniline & Film Corp., Johnson City, New York**. They are sold in a variety of type styles in ten sizes from 5/32" to 1 1/2" and are made of thin pliable plastic with beveled edges. They will adhere, on contact, to materials, such as paper, cardboard, plastic, wood, glass, stone, metal and chalkboards.

Write No. 44 on Information Card—Page 32



Flexible plastic paper clips can be purchased in many colors from **Gladen Enterprises, Inc., Bay City Michigan**. Short printed messages make the clips valuable for filing, flagging invoices, schedules, personnel identification, advertising and sales promotion. A free assortment of the latest samples is available.

Write No. 45 on Information Card—Page 32

A nylon typewriter ribbon has been introduced by **International Business Machines Corp., Electric Typewriter division, 545 Madison Ave., New York 22, N. Y.** It is half the thickness of ordinary ribbons allowing twice the amount

of ribbon to be contained on one spool. The ribbon changing frequency is thus cut by 50% for each typist.

Write No. 46 on Information Card—Page 32



A new development in acoustics substantially cuts the noise of keypunch and document writers. The cabinet, with a Plexiglas shield in front, fits over the top of the machine. It is made of heavy gauge steel with a baked crinkle finish. The walls are 1 1/2 inches thick and composed of four different insulation materials for effective noise control. The cabinet is a product of **Besco Company, 600 W. Jackson, Chicago 6, Ill.**

Write No. 47 on Information Card—Page 32



Development of a simple printing and stamping set with interchangeable letters, numbers, and punctuation marks has been announced by **American Stamp Works, 49 Ward Street, Paterson, N. J.** Each letter and number is grooved to snap into and out of the holder. A variety of type styles and sizes are available.

Write No. 48 on Information Card—Page 32

FREE EAGLE STICKPEN



included in FREE SCIENTIFIC WRITING TEST KIT!

Purchasing agents who've used this kit acclaim it "The most practical measure of ball pen performance ever devised!"

Get the actual handwriting test that every Eagle STICKPEN must pass after it has successfully passed 10 other rigid "Quality Control" tests! Specially devised by Eagle laboratory technicians, this scientific writing test shows up even the slightest imperfection of any ball pen . . . under actual writing conditions! No buying executive responsible for supplying his personnel with good office pens can afford to be without this instructive test-kit!

GET YOUR SCIENTIFIC WRITING TEST KIT...

NOW... FREE! Compare in your own hand, the Free Eagle STICKPEN against any other ball pen—using your own individual writing method and style!

FILL OUT AND MAIL THIS COUPON!

EAGLE PENCIL COMPANY, DANBURY, CONN.

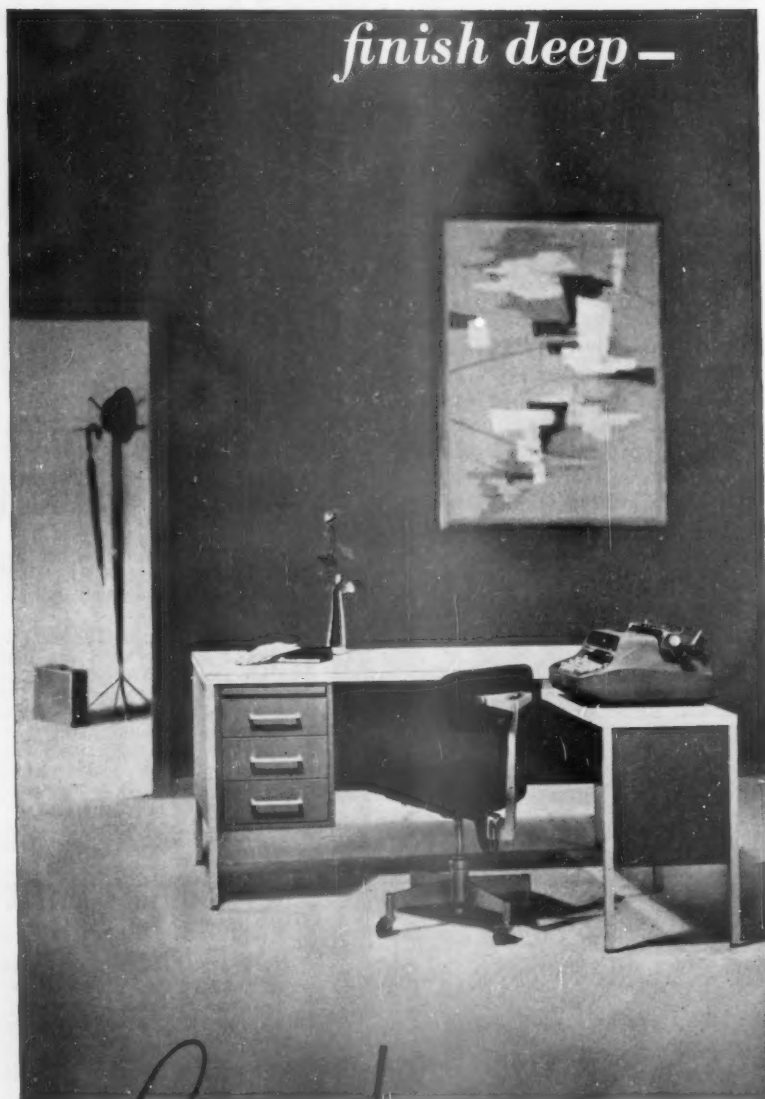
Without obligation, please send me the new Eagle STICKPEN included in the FREE WRITING TEST KIT that shows up even the slightest imperfections of any ball pen, under actual writing conditions!

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____
State _____

For More Facts Write No. 244
on Information Card—Page 32

*beauty that's
more than*

finish deep—



Peerless
stylized office furniture

New York
Chicago
Houston
Seattle
Los Angeles

PEERLESS STEEL EQUIPMENT COMPANY
Unruh and Hasbrook Avenues
Philadelphia 11
Pennsylvania

For More Facts Write No. 246 on Information Card—Page 32

Office Equipment



A new pen with combination features of ball point and fountain pen was recently introduced by Scripto, Inc., 350 Fifth Avenue, New York, N. Y. The major difference in the new pen is the off-center point. It is on the upper side of the barrel and turns down at a ten degree angle. The pen is styled in five colors: charcoal, black, red, grey and olive.

Write No. 49 on Information Card—Page 32

Photocopying machines and photocopy papers are described in a new brochure published by Haloid Xerox Inc., Rochester 3, N. Y. It defines the characteristics and sizes of stock photocopy papers, gives manipulation instructions, and offers constructive suggestions for correcting common operating problems.

Write No. 50 on Information Card—Page 32



Contemporary design is the feature of an addition to the line of telephone indexes made by Bates Manufacturing Co., 63 Vesey Street, New York 7, N. Y. A color matching memo pad and a gold finished mechanical pencil complete the set.

Write No. 51 on Information Card—Page 32



A giant replaceable ink cartridge keeps this desk ball pen writing on...and on...and on! New NOBLOT REFILL BALL PENS, with shining chrome trim, are available in four ink colors...Blue, Red, Green, Black...Thinrite or Regular ball point...with a replaceable flat ball pen eraser. There's a NOBLOT REFILL for every writing need! See your nearest stationer for NOBLOT REFILL BALL PENS by EBERHARD FABER—your one source of supply for all writing needs.

**NEW NOBLOT
REFILL BALL PEN**
READY TO WRITE—FOREVER!



SINCE 1849

EBERHARD FABER

puts its Quality in writing

T. M. Reg. U. S. Pat. Off. and Other Countries

Wilkes-Barre, Pennsylvania/New York/Toronto, Canada

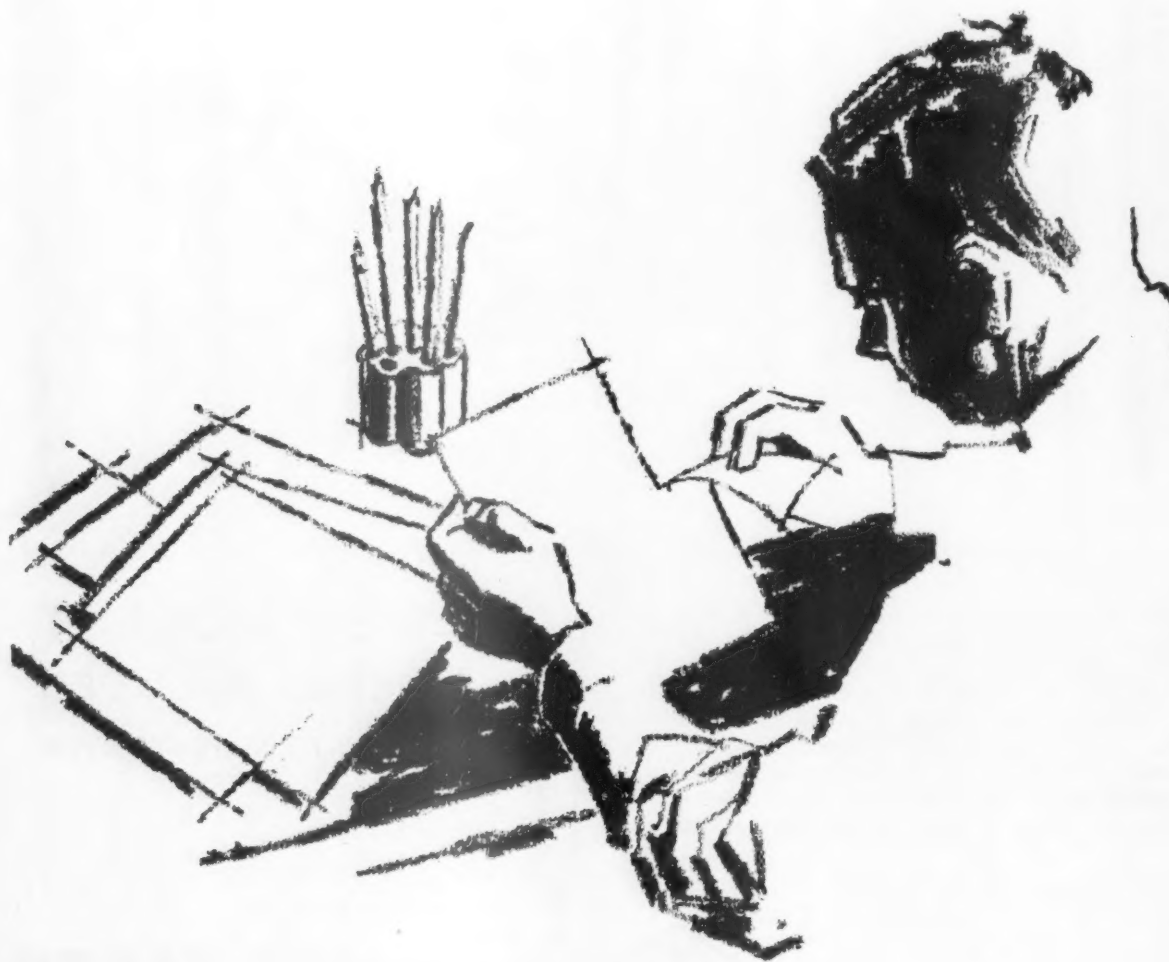
MARCH 13, 1961

For More Facts Write No. 247 on Information Card—Page 32

149

APPARENTLY THERE'S A DIFFERENCE... between regular run-of-the-mill paper and PLOVER BOND. It's easy to recognize. Perhaps it's the extra whiteness, the sparkling brightness, the added strength of carefully selected cotton fibers that make PLOVER BOND the visibly better letterhead paper. Or maybe it's because it's made with the purest papermaking water in the world. All this is true, but the big difference in PLOVER BOND is its ability to enhance the appearance of letterheads, envelopes and other business communications. Of all, the letterhead stands out as your company's single most important and frequent image builder. Everyday it goes to dozens, hundreds, even thousands of people and firms doing business with you. Make your company appear head-and-shoulders above the rest. Order the best — PLOVER BOND, the value buy in fine paper.

PLOVER
WHITING-**BOND** PAPER COMPANY, STEVENS POINT, WISCONSIN
better papers are made with cotton fiber





THE EQUITABLE TRUST COMPANY
BALTIMORE, MD.

NOTES 32.50

COIN 19.50

CHECK 20.00

32.45

16.02

13.00

8.25

25.50

16.22

43.80

27.75

16.00

TOTAL 305.30

FOR DEPOSIT TO THE CREDIT OF

LAYNE, INC.

BALTIMORE, MD.

ORIGINAL 18

"Thank you for handling with us"

THE EQUITABLE TRUST COMPANY
BALTIMORE, MD.
SPECIAL CHECKING ACCOUNT

Date APRIL 5, 1960
DEPOSITED TO THE CREDIT OF
WILLIAM JACKSON
600 NORTH HOWARD
BALTIMORE, MD.

ACCOUNT NUMBER
7-18386-5

CASE	DOLLARS	CENTS
20	-	-
120	-	-
46	50	-
TOTAL	186	50



"NCR PAPER saves its entire cost yearly through savings of time and effort."

—THE EQUITABLE TRUST COMPANY, BALTIMORE, MD.

"NCR Paper (No Carbon Required) enables us to provide our customers with deposit forms that are much cleaner and easier to use. We no longer have any complaints of smudged or smeared forms, which was often the case when we provided forms with carbons.

"Moreover, we get better cooperation from our customers in the use of pre-numbered deposit forms printed on NCR Paper. Customers seem more willing

to carry the forms because they know the forms will not smudge or smear. The increased use of these deposit forms has enabled us to provide faster and more efficient service for our depositors.

"We estimate that the many advantages of NCR Paper save us its entire cost every year through time saved and increased record-keeping efficiency."

C. W. Rodenhut

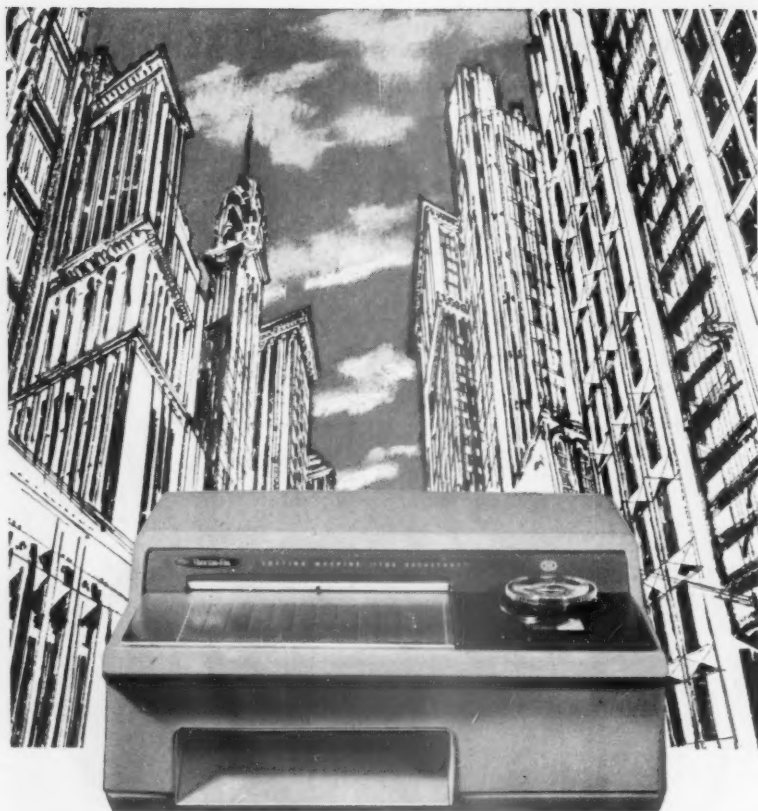
Vice President, The Equitable Trust Company

ASK YOUR LOCAL PRINTER OR FORMS SUPPLIER ABOUT NCR PAPER

Another Product of

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio
1039 OFFICES IN 121 COUNTRIES • 77 YEARS OF HELPING BUSINESS SAVE MONEY

**NCR PAPER
ELIMINATES
CARBON PAPER**



**PURCHASING EXECUTIVES! SEE FOR YOURSELF...
the most versatile business machine in
the business world **DOES MORE JOBS!****


On Wall Street, Michigan Avenue . . . Main Street U.S.A. . . . "Thermo-Fax" Brand Copying Machines are copying correspondence, addressing labels, laminating, making statements, projection transparencies, and paper printing plates. Also, systems papers for as little as 2¢ a copy. Plus many more jobs.

And all-electric "Thermo-Fax" Copying Machines are delivering each job perfectly dry in just 4 seconds!

The "Thermo-Fax" Copying Machine is the business man's business machine for one sound reason . . . does more jobs! See for yourself. Mail this coupon.

ADDRESSING LABELS PROJECTION TRANSPARENCIES LAMINATING
SYSTEMS PAPERS GENERAL COPYING PAPER PLATES

Thermo-Fax
BRAND
COPYING MACHINES

 <p>MINNESOTA MINING AND MANUFACTURING COMPANY ...WHERE RESEARCH IS THE KEY TO TOMORROW <small>THE TERM "THERMO-FAX" IS A REGISTERED TRADEMARK OF 3M COMPANY</small></p>	<p>MINNESOTA MINING AND MANUFACTURING CO. Dept. DCZ-3131, St. Paul 6, Minnesota At no obligation, I'm interested in information about how a "Thermo-Fax" Copying Machine can simplify the jobs mentioned above.</p> <p>Name _____ Company _____ Address _____ City _____ Zone _____ State _____ <input type="checkbox"/> Check if you now own a "Thermo-Fax" Copying Machine.</p>
--	--

For More Facts Write No. 249 on Information Card—Page 32

Office Equipment



Pens for drawing, ruling and lettering have been developed with a single holder and seven interchangeable point sections that provide seven different line widths. A product of Koh-I-Noor, Inc., Bloomsbury, N. J., each section has its own refillable translucent plastic ink cartridge. The entire set comes with a squeeze bottle dispenser for ink in a handy set box that serves as a permanent container for the holder and point sections.

Write No. 52 on Information Card—Page 32



Confidential purchasing records may be destroyed under proper supervision with a new shredding machine developed by Industrial Shredder & Cutter Co., Salem, Ohio. It has an automatic feed shredder, housed in a fiberglass case, mounted on an aluminum collection bin. An important feature is the automatic feed hopper which eliminates hand feeding.

Write No. 53 on Information Card—Page 32

For More Facts About Ad
on Facing Page Write in No. 250→

Now...IBM Control Panels

DELIVERED IMMEDIATELY

...from your local IBM office

NOW . . . IBM CONTROL PANELS

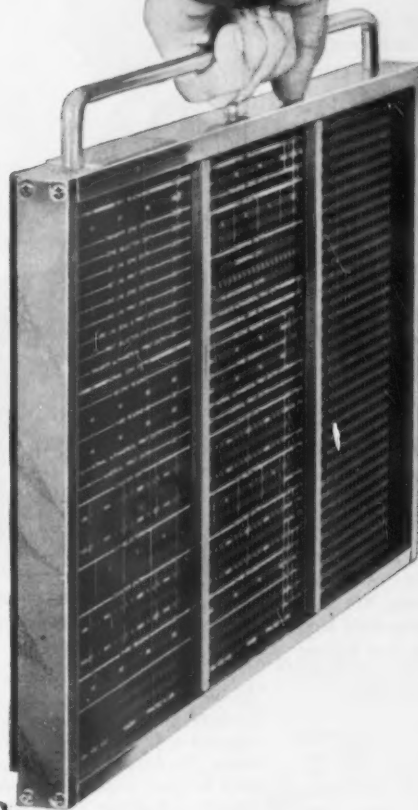
are available at all of our 192 branch offices. A phone call . . . and your panel literally comes off the shelf to meet your emergency need.

Call With Confidence . . . because IBM alone carries the complete line of control panels.

Behind The Panel . . . is IBM's liberal trade-in policy. In addition, IBM control panels may be returned for credit if obsoleted by the installation of a more advanced IBM system.

With The Panel . . . you get IBM quality and engineering know-how . . . and, most important, IBM service. This service is provided by men with an intimate knowledge of your IBM equipment and systems . . . so they can be genuinely helpful on panel problems.

So . . . next time you need a control panel, call your IBM office and get immediate delivery . . . at new lower prices . . . from the company that designed and built your data processing system.



IBM®
DATA PROCESSING



"Our business grew so fast we had 'paperwork' problems—and even data processing couldn't fully solve them."

—says JAMES P. JACOBS, President
Hardware Mutuals - Sentry Life insurance group, Stevens Point, Wisconsin



"I prescribed Data-Phone, the new Bell service that lets business machines 'talk' over regular telephone lines."

—says LEE DESTACHE,
Communications Consultant for Wisconsin Telephone Company

Insurance firm speeds data handling 500%!

A new Bell System service—Data-Phone—is helping the Hardware Mutuals - Sentry Life insurance group greatly speed policyholder service and is helping to save the firm a million dollars in annual operating costs.

Data-Phone enables Hardware Mutuals to send volumes of insurance data in business machine language by telephone from its nationwide branches to its data processing center in Stevens Point, Wisconsin. Data-Phone calls are made like ordinary phone calls. And once the connections are made, data is sent rapidly from one business machine to another. It's the largest system of its kind in the nation.

This pioneer installation followed a thorough study of Hardware Mutuals' operations by Bell System Communication Consultant Lee Destache.

He found their business volume had doubled in ten years and was expected to double again in even less time. Costly paperwork was mounting—and, even with modern data processing, the rapid collection of daily operating data from widely scattered branches was becoming more and more difficult. Data-Phone was the logical solution.

Hardware Mutuals' president, James P. Jacobs, says:

"Our use of modern data processing equipment and the new Bell System Data-Phone lets us collect the mass of information we need for management decisions almost instantly. It has cut the time needed for certain policy-handling functions from three days to three minutes. And it is reducing our operating costs



Communications Consultant Lee Destache (left) discusses a Data-Phone unit with Hardware Mutuals - Sentry Life president James Jacobs.

more than a million dollars a year. Data-Phone is an important factor in our cost savings because we pay for telephone circuits only when we are actually using them. No leased private lines are necessary because Data-Phone works over the regular telephone network.

"Speed, accuracy and good service are vital to our business—and Data-Phone has contributed to all these elements. We're giving policyholders faster, better service than ever before. We couldn't have found a better solution to our problem."

This is just one example of many new services the Bell System is developing for the special needs of business today—and of the way Bell System Communications Consultants like Lee Destache are meeting those needs.

Are your present communications helping your profit picture as much as they possibly can? Find out for sure. Call your Bell Telephone Business Office and ask for a Communications Consultant. Do it today.

BELL TELEPHONE SYSTEM

THE ONE SOURCE FOR ALL BUSINESS COMMUNICATIONS



Which of these Hammermill Graphicopy Papers could you use profitably now?

Check as many as you like:

FOR OFFSET PRINTING

- ☐ **HAMMERMILL BOND**
Standard of quality for better-looking letterheads, forms, enclosures. Clear, bright and strong. Good erasability and typewriting quality. White and 13 beautiful colors.
- ☐ **COCKLETONE BOND**
For executive letterheads and important documents. Luxury paper at modest cost. Excellent typing, writing and erasing surface.
- ☐ **MANAGEMENT BOND**
A good-looking watermarked paper for low-cost letters, forms, enclosures. Fine typing and writing surface.
- ☐ **WHIPPET BOND**
For forms, advertising literature, bulletins, catalog pages. An economical unwatermarked bond with top press performance qualities.
- ☐ **HAMMERMILL OFFSET SUPER-SMOOTH**
Outstandingly level surface gives brilliant printing effects with life-like illustrations. Runs well on spirit duplicators.
- ☐ **HAMMERMILL OFFSET WOVE**
For general purpose offset reproduction: advertising pieces, sales literature, manuals, catalogs.
- ☐ **HAMMERMILL OFFSET VELLUM**
For all kinds of ad-promotion printing. Gives a softer more subtle effect to art work and product illustrations. Also works well with stencil duplicators.
- ☐ **GLOSSETTE COATED OFFSET**
For sharpest reproductions of black and white or colors—type, solids, illustrations. Ideal for bright, sharp spirit duplicator copies. Works well as a spirit master.
- ☐ **DEEPLAKE OFFSET**
A reliable general purpose paper at a very reasonable price. Wove finish.
- ☐ **HAMMERMILL OPAQUE**
Gives extra sparkle to type, solids, illustrations. Tops for two-side printing. Good for extra-quality stencil duplicating with contact dry or paste inks. Vellum finish.

☐ HAMMERMILL INDEX

For index cards, show cards, folders, menus and general advertising. Strong, snappy and easy to use in the type-writer or on the spirit duplicator. Best index paper for any printing.

FOR MIMEOGRAPHING

☐ HAMMERMILL Mimeo-BOND

For top-quality reproductions of bulletins, scripts, sales letters, other mimeographed messages. Lint-free, with minimum set-off. Gives more than 4,000 readable copies per stencil.

☐ WHIPPET MIMEOGRAPH

For clean, sharp, low-cost mimeograph copies. Lies flat, runs fast.

FOR DUPLICATING

☐ HAMMERMILL DUPLICATOR

Gives outstandingly bright, sharp copies of bulletins, reports, invoices. Colors, made with alkali-resistant dyes, are right for Azograph duplicator use.

☐ WHIPPET DUPLICATOR

For attractive spirit and gelatin duplicated messages at low paper cost.

☐ HAMMERMILL DOUBLE PURPOSE MASTER PAPER

For long or short run masters on spirit and gelatin duplicators. Good for offset reproduction proofs.

FOR SPECIAL PURPOSES

☐ HAMMERMILL TRANSLUCENT

For "whiteprint" machine masters. Excellent for printed headings by offset duplicators. Types, writes, erases well. High translucency gives fast, clear copies.

☐ HAMMERMILL BRAILLE

Made especially for clean, firm, durable embossing of smooth raised dots by the Addressograph-Multigraph Braille Duplicator or the Perkins Braille.

☐ MYLAR® REINFORCED PAPERS

Three-hole punched for long use in three ring binders. Super thin Mylar film lets you feed papers automatically. Available in round and square cornered Hammermill Bond, Hammermill Duplicator, Mimeo Bond, Whippet Bond, Mimeo and Duplicator also available in square corners.

ASK YOUR HAMMERMILL SUPPLIER for profitable information on any Graphicopy paper. Hammermill Paper Company, Erie, Pennsylvania.





ALL AROUND THE OFFICE



People think better



in Harter
CRITERION



15 models to
choose from:
EXECUTIVE, SUPERVISORY
and GENERAL OFFICE

Mental alertness promotes business growth. Proper equipment frees minds to concentrate on the job. Start with the most important factor . . . chairs. Make them Harter Criterion. Fifteen models for every job function in the office. Guaranteed bridge-strong construction. Deep, cool foam rubber cushioning. Rounded non-marring corners protect other furniture. Try a Criterion at a Harter dealer's Seating Center.

You'll get your literature by return mail if you just attach this coupon to your letterhead and mail to:

HARTER CORPORATION
329 Prairie Street, Sturgis, Michigan
Canada: Harter Metal Furniture, Ltd., Guelph, Ont.

Office Equipment



Portable spirit duplicator is being manufactured by **Master Addresser Co.**, 6500 West Lake St., Minneapolis, Minn. It is equipped with a carrying case which also serves as storage for copy paper. Masters can be prepared by typing or writing with ball point pen. Write No. 54 on Information Card—Page 32

A 48-page booklet explaining magnetic ink character recognition and answering the most frequently asked questions about

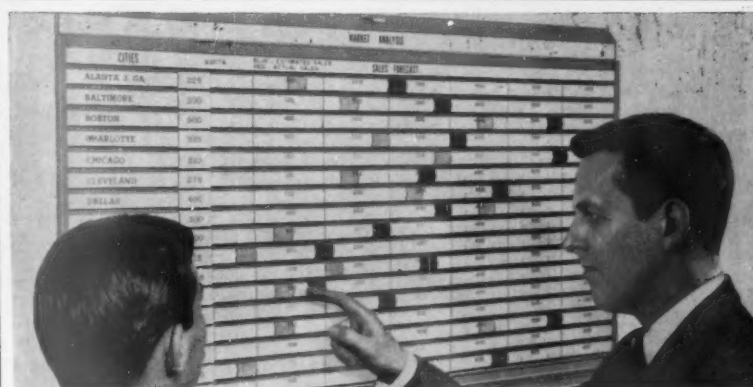
magnetic ink check encoding is now available, without charge, from **A. B. Dick Co.**, 5700 West Touhy Ave., Chicago, Ill.

Write No. 55 on Information Card—Page 32



New line of contemporary office furniture has been introduced by **Peerless Steel Equipment Co.**, Unruh and Hasbrook Avenues, Philadelphia 11, Pa. An exclusive feature of the new design is the "Spiracor" top, which is guaranteed not to warp.

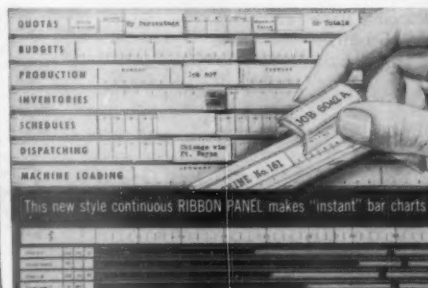
Write No. 56 on Information Card—Page 32



Quickly chart management action, facts or trends with ACME VISIBLE CONTROL PANELS

Acme Control Panels adapt to your exact needs: Unlimited charting possibilities. Transparent colored signals

flag due dates, reorder levels, quotas, goals. Signals slide smoothly . . . override or by-pass each other.

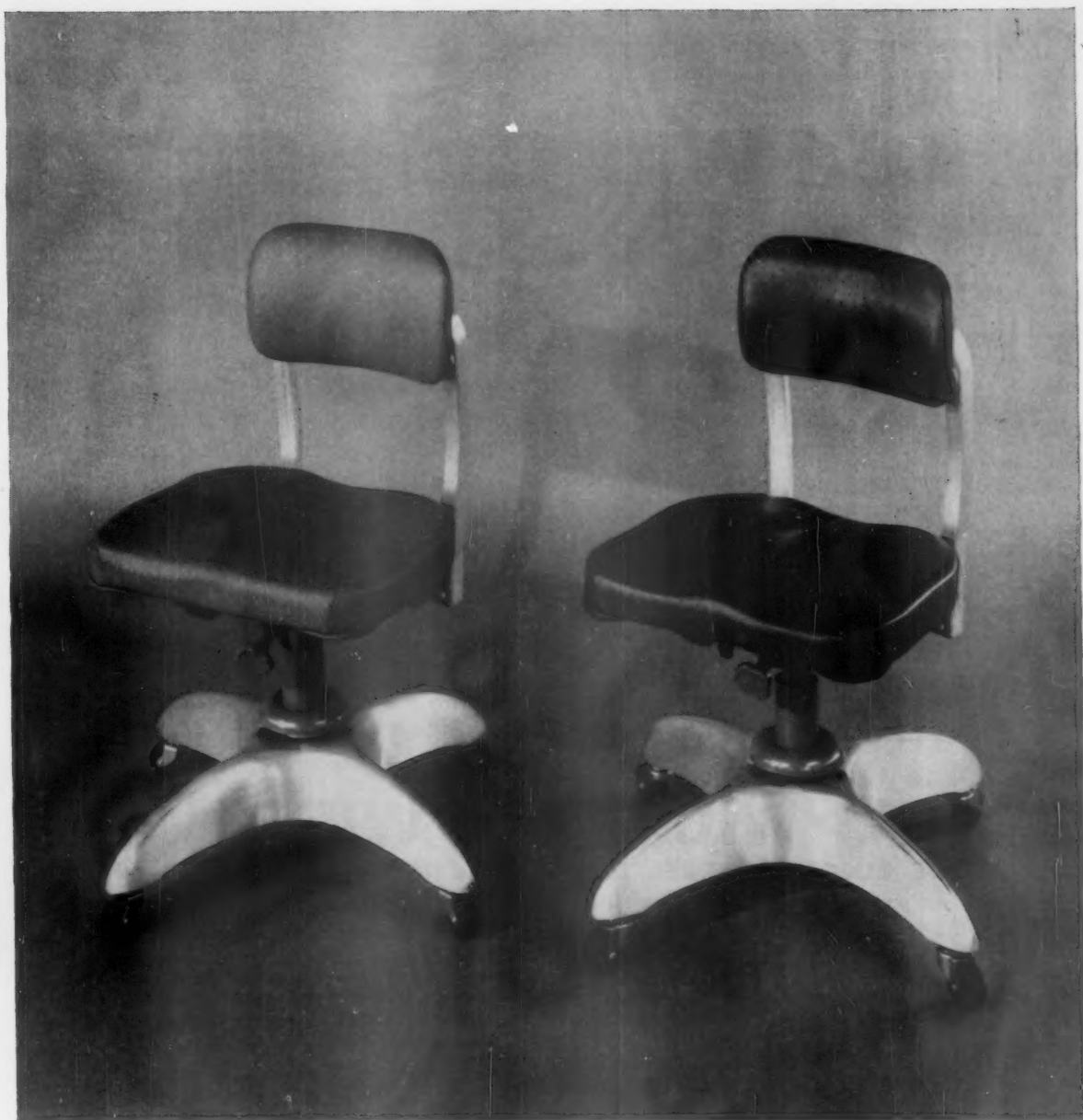


ACME VISIBLE

ACME VISIBLE RECORDS, Inc.
8203 West Allview Drive, Crozet, Va.
Please send colorful booklet on new Acme Visible Visual Control Panels and their many uses. I am interested in _____ type of record.

NAME _____ POSITION _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____ ZONE _____

For More Facts Write No. 253 on Information Card—Page 32



Which chair has been in use 12 years?

FREE LITERATURE on GF Business Furniture

Check literature desired, attach to your business letterhead, and mail to department listed at right.

- ☐ NEW GOODFORM 300
SERIES CHAIRS
- ☐ GOODFORM 3143
SECRETARIAL CHAIRS
- ☐ GF BUSINESS FURNITURE
CONDENSED CATALOG

One of the two GF chairs pictured above has seen 12 years of active service and wear. Yet you can hardly tell it from a new, unused chair. To find out which is which, see below.

The reasons GF Goodform chairs give long, trouble-free service are no secret. On the 200 Series chairs shown, as well as the newer high-style lines now available, fabrics must successfully pass severe flexing, abrasion and color-fast tests. And all parts, from chair frames and seats to casters, are "torture tested" to meet rigid quality standards. It's all part of making sure that GF business furniture serves you better, lasts longer. Department PM-13, The General Fireproofing Co., Youngstown 1, O.

Chair at right has been in use 12 years; chair at left is new.

GF
BUSINESS FURNITURE

Customer reports confirm...

CF&I Wire Packaging increases production, eases handling

In instance after instance, all across the country, manufacturers have reported cutting hours off daily downtime, easing storage and handling problems... *increasing production as much as 50% ... after they started using CF&I Steel Wire — Packaged for Your Production.*

This is possible because all CF&I Wire is packaged specifically to give you one, or a number of special pro-

duction or handling benefits. Several typical statements describing users' production benefits are reported here.

CF&I, the pioneer in wire packaging, makes wire in a wide range of gages and finishes. Whatever your needs, CF&I can fill them. Call your local CF&I sales office for full details on the Wire Packaged for Your Production.

CF&I-WICKWIRE WIRE

THE COLORADO FUEL AND IRON CORPORATION



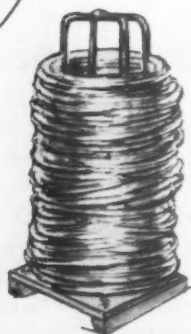
In the West: THE COLORADO FUEL AND IRON CORPORATION — Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Farmington (N. M.) • Ft. Worth • Houston • Kansas City • Lincoln • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco • San Leandro • Seattle • Spokane • Wichita

In the East: WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICE IN CANADA: Montreal

CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg

7633



DISPOSABLE STEM-PAKS®
Capacity—500-1000 lbs.

Customer Report—
"50% increase in production
since we started using Stem-
Paks."



DISPOSABLE SPOOLS
Capacity—5-70 lbs.

Customer Report—
"Easy to handle and store...
quick to put in operation."

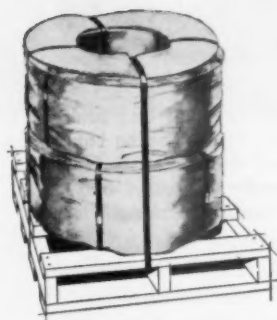


FIBRE DRUMS
Capacity—250-600 lbs.

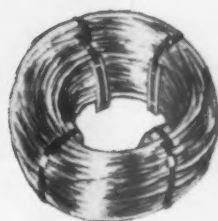
Customer Report—
"Wire protected from dust, rust
and corrosive fumes. Easier
handling, storage, inventory."



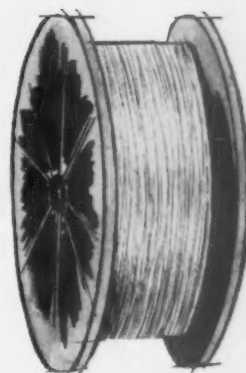
RETURNABLE SPIDERS: Capacity—2000-3000 lbs. Customer Report—
 "25% increase in production, 20% less downtime and 80% less scrap loss with the long, uninterrupted pay-off of these returnable spiders." CF&I produces top quality wire in thousands of different types, sizes, shapes and finishes to meet all types of wire applications.



REEL-LESS CORES
 Capacity—800-1000 lbs.
 Customer Report—
 "Easier handling, less storage problems and lower freight handling charges."



SHAPED COILS
 Capacity—1500-2500 lbs.
 Customer Report—
 "20% increased production with longer runs, plus easier storage and reduced handling costs."



RETURNABLE STEEL REELS
 Capacity—500-800 lbs.
 Customer Report—
 "Holds six times the wire as standard coils. Smoother pay-off, less scrap loss, easier shipping."

Committee Chairmen Selected For 1961 N.A.P.A. Convention

The annual convention of the National Association of Purchasing Agents is slated for June 4-7, 1961 in Chicago. Committee chairman (shown below) are busy buttoning-up last minute details to insure an outstanding meeting.



Standing (l. to r.): D. A. Williamson, Caspers Tin Plate Co.; Walter Armstrong, American National Bank & Trust Co.; and Gilbert H. Marshall, Hild Floor Machine Co. Seated (l. to r.): Larry R. Seen, Borg-Warner Corp., and Jacob C. Frehner, Bowman Dairy Co.



Standing (l. to r.): Helen Waterman, Chicago Motor Club; Arlo Carney, Belden Mfg. Co.; and Charles R. Emert, General Electric Co. Seated is Harold A. Berry, Chicago, Rock Island & Pacific Railroad Co.



Standing (l. to r.): Henry C. Kopp, Anaconda Co., and Russell P. Oliver, H. Kohnstamm & Co. Seated (l. to r.): Roy F. Sielisch, Radio Industries, and Don L. Harwood, Fairbanks, Morse & Co.



Standing (l. to r.): Andrew K. Kolar, Link-Belt Co.; John M. Lajka, Illinois Testing Laboratories; and Robert E. Foster, Formfit Company. Seated is Harold J. Jungbluth.



at your favorite store—

The stainless gleam of quality
in new fashions for the home

See the many new expressions of stainless beauty and versatility on display—each with its own message of interest to you in the metals field. Note how stainless steel's strength is matched with corrosion-proof luster, easy formability, every degree of surface finish from mirror-bright to satin-smooth. And for your own stainless fabrication requirements, think of SUPERIOR—ready with the grades, deliveries and technical help to serve every need!



SUPERIOR STEEL DIVISION

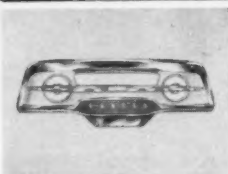
OF
COPPERWELD STEEL COMPANY
CARNEGIE, PENNSYLVANIA

For Export: Copperweld Steel International Company, New York

Superior
STAINLESS STRIP STEEL

**Good product reputations
are built on quality...**

*that's why so many
industry leaders*



It's true. Companies which have grown to industrial leadership jealously guard their good reputations by marketing only high-quality products.

CYCOLAC brand polymers... an ABS type of resin... has helped many companies maintain the quality of their products while achieving new economies in materials and production. This remarkable engineering material is presently serving some of America's foremost manufacturers in the automotive, appliance, telephone, type-writer and toy industries.

Investigate this amazing material today. Find out why it is better in more ways than any other plastic. For technical information and the name of the processor nearest you, write Dept. CP-3.

MARBON CHEMICAL
WASHINGTON



DIVISION **BORG-WARNER**
WEST VIRGINIA

For More Facts Write No. 257 on Information Card—Page 32
162

**Most efficient, most economical way
to line drums, cartons, cans, pails**

GER-PAK POLYETHYLENE LINERS IN ROLLS

SAVE WORK!

Just slip GER-PAK Liners onto any holder above work area. No handling problem!



SAVE TIME!

Pull Liner down over mandril. Then zip off quickly, cleanly at perforation!



SAVE FUSS!

No smoothing-out by hand! Insert mandril and Liner into container, "cuff" around top, remove mandril!



For drums
For cartons
For cans, pails



- Quality-made to seal out dirt, moisture, all contamination!
- Chemically inert to protect containers!
- Up to 120 inches in width; no limit to length!
- Available gusseted and non-gusseted!
- Tie-off or peel-over construction!
- LEAKPROOF DOUBLE SEAL optional upon request!

Write Dept. PM-3 for samples.
the short way to say superior polyethylene sheeting



GERING PLASTICS, division of STUDEBAKER-PACKARD CORP.,
Kenilworth, N.J.

For More Facts Write No. 258 on Information Card—Page 32
PURCHASING

Another Hotel Reservation
first for business travellers —
from Sheraton



SELF- CONFIRMATION

Now you can travel with a guaranteed hotel
confirmation written in your own office the
instant you phone for a *RESERVATRON* reservation.

There's *no work* in the way it works:

1. You, your secretary or travel department calls the nearest Sheraton Hotel or Reservation Office.
2. Your reservation is made electronically by seconds-fast *RESERVATRON* and verbally confirmed immediately.
3. At the same time you fill out your own confirmation (on forms supplied by Sheraton) for the hotel reservation you requested. There are fifty-six Sheraton Hotels coast to coast in the U.S.A., in Hawaii, and in Canada.

Self-Confirmation saves time and peace of mind!
Eliminates paper work, costly phone calls and wires!
Speeds service in corporate travel departments.

SHERATON HOTELS

SEND COUPON FOR COMPLETE DETAILS

Self-Confirmation, Sheraton Corporation of America,
470 Atlantic Avenue, Boston 10, Massachusetts
I am interested in knowing more about Sheraton's unique
SELF-CONFIRMATION Plan:

Name
Title
Company Name
Company Address
City Zone State



SHERATON HOTELS

For Reservations by
the new 4-Second
Reservation or
Direct-Line Teletype
call your nearest
Sheraton Hotel

EAST

NEW YORK
Park-Sheraton
Sheraton-East
(the Ambassador)
Sheraton-Atlantic
Sheraton-Russell

BOSTON

Sheraton-Plaza

WASHINGTON

Sheraton-Carlton

Sheraton-Park

PITTSBURGH

Penn-Sheraton

BALTIMORE

Sheraton-Belvedere
Sheraton-Baltimore Inn

PHILADELPHIA

Sheraton Hotel

PROVIDENCE

Sheraton-Biltmore

SPRINGFIELD, Mass.

Sheraton-Kimball
Sheraton Motor Inn

ALBANY

Sheraton-Ten Eyck

ROCHESTER

Sheraton Hotel

BUFFALO

Sheraton Hotel

SYRACUSE

Sheraton-Syracuse Inn

BINGHAMTON, N. Y.

Sheraton Inn

MIDWEST

CHICAGO

Sheraton-Blackstone
Sheraton Towers

DETROIT

Sheraton-Cadillac

CLEVELAND

Sheraton-Cleveland

CINCINNATI

Sheraton-Gibson

ST. LOUIS

Sheraton-Jefferson

OMAHA

Sheraton-Fontenelle

AKRON

Sheraton Hotel

INDIANAPOLIS

Sheraton-Lincoln

FRENCH LICK, Ind.

French Lick-Sheraton

RAPID CITY, S. D.

Sheraton-Johnson

SIOUX CITY, Iowa

Sheraton-Martin

SIOUX FALLS, S. D.

Sheraton-Carpenter

SHERATON-Cataract

CEDAR RAPIDS, Iowa

SHERATON-Montrose

SOUTH

LOUISVILLE

Sheraton Hotel

THE WATTERTON

DALLAS

Sheraton-Dallas

NEW ORLEANS

Sheraton-Charles

MOBILE, Alabama

Sheraton-Battle House

WEST

SAN FRANCISCO

Sheraton-Palace

LOS ANGELES

Sheraton-West

PASADENA

Huntington-Sheraton

PORTLAND, Oregon

Sheraton-Portland Hotel

HAWAII

HONOLULU

Royal Hawaiian
Royal Manor
Princess Kaiulani
Moana
SurfRider

CANADA

MONTREAL

Sheraton-Mt. Royal
The Laurentien

TORONTO

King Edward Sheraton

NIAGARA FALLS, Ont.

Sheraton-Brock

HAMILTON, Ont.

Sheraton-Connaught

OVERSEAS

ISRAEL

TEL AVIV
Sheraton-Tel Aviv

Banker Addresses Atlanta Group



Fred Kreiss (left), General Motors Corp., president of Georgia Association of Purchasing Agents, introduced the guest speaker, Albert Johnson of the Atlanta Federal Reserve Bank.



The financial outlook for the year was the topic at Atlanta and many P.A.'s stayed late to continue the discussion. Shown here are (l. o r.): Charles Cox, DeKalb County; Irby Skelton, Larking Coil Co.; and William Sims, Warren Co. Inc.



Members of the Atlanta Association who came out to hear the Federal Reserve banker include (l. to r.): Joseph C. Reeves, Atlanta Newspapers, Inc.; H. P. Williamson, Georgia Power Co.; and C. W. Hayes, Emory Univ.



Mr. Johnson (left) listens intently to Robert E. Dunn, H. W. Lay Co. Mrs. Marie Sayne, Atlanta Gas Light, and James Guzzo, Rich's Inc., complete the head table.



1940



1960



In 1940, the average farmer fed only 10 people. Today, Shell's aldrin helps him feed 25.

BULLETIN:

Shell Chemical reveals why one farmer brings you 2½ times as much food today as in 1940

Mechanization is part of the answer. The biggest part, however, lies in controlling pests which still cause 13 billion dollars of damage every year.

Shell Chemical produces insecticides, soil fumigants and other pesticide chemicals to help farmers control these pests.

Read what just one of these remarkable products, aldrin, does for farmers—and for you—in terms of bigger yields of healthier, better corn.

TWENTY years ago, the average Iowa corn farmer got a yield of 52 bushels per acre. Today, he gets 65 bushels.

Many factors contribute to this. Among them are increased use of fertilizers; improved soil conservation and control of diseases, weeds and destructive insects above and below ground.

18 underground enemies

There are at least 18 different soil insects that attack corn.

Some, such as wireworms, damage seed so severely that it can't even start to grow. Others, such as corn root worms, sever roots of growing plants, cutting off their food and water supply and leaving them vulnerable to toppling by heavy winds and rains.

Economical weapon

Shell Chemical's aldrin gives farmers low-cost protection against all 18 insects. One application protects a crop for an entire season.

Where insect infestation is severe, aldrin can *double* yields. Where infestation is average, yields go up enough to pay for the aldrin and its application at least *three* times over.

Corn flakes and plump pigs

Today, aldrin is protecting the roots of millions of acres of corn.

The results show up on your table. In corn on the cob. Corn bread. Corn flakes. Prime, corn-fattened beef and bacon. And in hundreds of other foods.

One man feeds 25

It may surprise you to learn that this

year the average farmer in America must raise enough food to feed twenty-five people including himself. That's 15 more mouths than he had to feed in 1940.

To do this he needs all the help he can get.

How Shell helps

At Modesto, California, a Shell laboratory brings him some of this help.

Here, more than 2,000 new agricultural compounds are tested every year. Sometimes, only one will meet exacting biological standards for continued development. If so, five years of extensive testing and more than a million dollars may be spent before an ounce is sold.

This is necessary. By 1975, 50 people may rely on one farmer for their daily food.

A Bulletin from
**Shell
Chemical
Company**



Agricultural Chemicals Division

**Initial
Price !**



**Owning
Cost ?**



Figure both to get your final steel cost

Steel is low in cost. You can keep it that way if you don't tack on unnecessary expense. After you've figured initial price don't overlook what it costs to own, store, handle and cut steel for your use. These costs of possession often are hidden. But your steel service center frequently can help you reduce them.

Each steel user's case is different. Ask your steel service center to help you determine the most

economical way to buy steel. They will help you figure all your costs of possession, such as:

Cost of capital	Cost of operation	Other costs
Inventory	Space	Obsolescence
Space	Material handling	Insurance
Equipment	Cutting & burning	Taxes
	Scrap & wastage	Accounting

Call your nearby steel service center, or write for free booklet, "What's Your Real Cost of Possession for Steel?"



...YOUR STEEL SERVICE CENTER

STEEL SERVICE CENTER INSTITUTE
540-E Terminal Tower, Cleveland 13, Ohio



For More Facts Write No. 318 on Information Card—Page 32

For More Facts About Ad
on Facing Page Write in No. 262→
PURCHASING



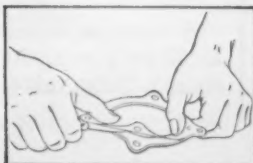
**Right to a
thousandth
when you
adjust with
LAMINUM[®]**

Just *p-e-e-l* the laminations—it's that easy to get accurate assemblies with LAMINUM... even as close as a thousandth. No machining. No grinding. No counting. No stacking. No miking. And no need for stand-by equipment.

LAMINUM is versatile, too. You have a choice of brass, mild steel, stainless or aluminum... of .002" or .003" laminations... of plastic bond or metallic bond.

Whatever your choice, we'll custom-stamp LAMINUM to your own rigid specifications... any size, any shape, and quantity... to look and act like solid metal... to help you produce more and better assemblies... in less time... and at less cost.

That's what makes LAMINUM so practical. So popular. So easy to use. Revised SHIM DESIGN FOLDER No. 4 gives complete up-to-the-minute engineering data. Send for your copy today.



THE LAMINATED SHIM COMPANY, INC.
Home Office and Plant
2403 Union St., Glenbrook, Conn.

•
West Coast Sales and Service
600 Sixteenth St., Oakland 12, Calif.

LOOKING for the
RIGHT CUTTER
for those IMPOSSIBLE
METAL
CUTTING
Jobs!



Here's the Curtain-Raiser
to a Quick Solution!



There's a HAND or HYDRAULIC powered PORTER CUTTER to answer your toughest metal-cutting problems — over 100 different cutters, all designed to save you time, labor, and money! Make short work of cutting:

• Bolts • Rods • Screws • Rivets • Wire
• Chain • Steel Strapping • Soft,
Medium & Hard Metals & Many Others

**CUT LABOR COSTS
UP TO 97%**



The famous PORTER CENTER-CUT CUTTER... our most popular tool... is the leading all-around cutter for industrial use! For Free Cutting of Soft and Medium Hard Metals up to $\frac{3}{4}$ ". Available in 6 sizes.

... and for "PRODUCTION" CUTTING



The PORTER WORK-STATION CUTTER can increase one man's output up to 300% in continuous volume cutting! In 3 sizes — up to $\frac{1}{2}$ " capacity!

ALSO... for those RUGGED JOBS!

The PORTER HEAVY DUTY CUTTER cuts almost anything in metal up to $\frac{3}{4}$ " diameter — thanks to its heat-treated, hard-tempered center-cut jaws! Comes in 3 sizes.



Contact your Industrial Distributor... or write for your free catalog with illustrated, detailed descriptions of the versatile PORTER line!

CUT up to $\frac{3}{4}$ "
rods with HAND
OPERATED TOOLS
— up to $1\frac{1}{2}$ " rods
and $2\frac{1}{2}$ " power
cable with POWER
OPERATED TOOLS.

H. K. PORTER, inc.

Somerville 43, Mass.

For More Facts Write No. 263
on Information Card—Page 32

Association News

Cleveland Forum Devoted To Industrial Distributors



Speakers at the Cleveland association panel were (l. to r.): Dan R. Paskey, Harold L. Sanders, Delos E. Sabin, and John D. Williams.

A recent forum conducted by the Purchasing Agents Association of Cleveland was devoted to the topic "How The Industrial Distributor Can Help You."

Two members of the Association shared a panel with two experts on industrial distribution from Cleveland. John D. Williams, president of Mau-Sherwood Supply Co., and Dan R. Paskey from Cleveland Twist

Drill were the visitors. Harold Sanders, Borg-Warner Corp., and Delos E. Sabin, Leece-Neville Co., were the members who took the floor.

Mr. Paskey told the group, "Without the distributor, the manufacturer would be faced with performing the distribution function which could conceivably increase the cost of some products to twice what it is now."

Chemical Buyers Briefed On Value Analysis



Frank Winters (center), assistant executive secretary-treasurer of the National Association of Purchasing Agents, chats with Glenn Reinier (left), Abbott Laboratories, and E. C. Drew, Allied Chemical Corp.

A chemical buyer may be great at filling a requisition, but if he doesn't bring value analysis into

the picture, he's only doing part of his job. That's what Harry (Please turn to page 170)

BUSINESS IN MOTION

To our Colleagues in American Business...

When Tube-In-Strip* was announced in January, 1956, Revere engineers felt that it would have many varied uses but they never dreamed that those uses would prove as diversified as time has shown them to be.

Since the introduction of Tube-In-Strip, designers and engineers in some 64 basic industries, representing thousands of applications, have been applying this versatile product in the solution of specific problems, the improvement of existing products, and the development of new products. To give you some idea of what can be done with Tube-In-Strip, we cite the following examples:

AS A HEAT RECLAIMER in an industrial laundry, Revere Tube-In-Strip saved \$1,485.37 in a four-month period. During that time 200,000 more pounds of laundry were washed than in the previous four months, at a \$100 saving in steam cost. Prior to that time, due to a limit on the amount of steam that could be purchased, the laundry had to use lower water temperatures and operate on a two-shift basis. The heat reclaimer consists of a battery of 30 panels, with 3 panels of Revere Copper Tube-In-Strip, riveted together, measuring 48"x82" overall. The unit reclaims heat from the used wash water and uses it to heat the incoming fresh water. This is done by channeling the used wash water around the Tube-In-Strip panels while the incoming fresh water is heated as it flows through the tubes. The savings in steam costs arises from the fact that incoming fresh water does not have to be heated nearly as much to bring it up to washing temperature.

AS A REFLECTIVE RADIANT COOLING UNIT in a bakery, Revere Copper Tube-In-Strip saves up to 30% in production while vastly improving product quality. The radiant cooling unit which is used to set chocolate-coated

cookies and biscuits, consists of a 108'-long tunnel, fully enclosed. On top and bottom of the tunnel are nine 8' sections of Revere Copper Tube-In-Strip through which is pumped a cooling medium at 8 to 12 degrees F.

Through cooling radiation, this properly sets the chocolate within 4¾ to 5 minutes. A drying unit is also included in the installation, where 250 cu. ft. of super-dry air per minute are forced between plates of Revere Copper Tube-In-Strip at a temperature below zero.

AS WATER-COOLED BUS BAR Revere Copper Tube-In-Strip makes possible substantial savings in the manufac-

ture of semiconductor rectifiers for a leading electrical product manufacturer. It eliminates the possibility of leaks, results in more efficient cooling, enables the user to change cells without draining the system which is completely sealed, thus eliminating the need for O-rings or gaskets.

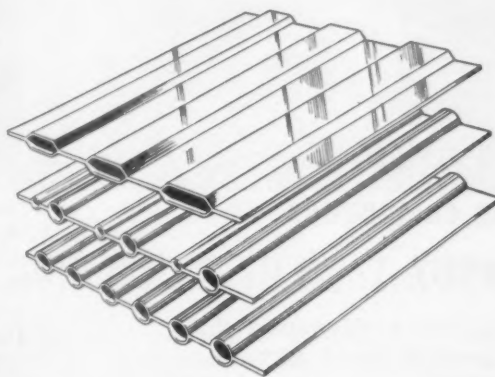
AS AN ELECTRIC HEAT FIN ELEMENT Revere Aluminum Tube-In-Strip is used to heat homes with electric baseboard. The manufacturer who replaced former units with this versatile

product reports increased efficiency and simplification of design of heating elements, lower case temperatures and substantial savings in manufacturing costs.

These are just four of the thousands of ways Revere Tube-In-Strip, of copper, copper-base alloys, aluminum and aluminum alloys, can save money... improve product quality.

Send today for further information on how Revere Tube-In-Strip can be applied to your operation, stating nature of your business or product.

*Tube-In-Strip is a solid piece of flat sheet or strip metal with "built-in" passages that may be inflated, by pressure, into tubes. Thus the tubes become an integral part of the metal.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

Executive Offices: 230 Park Avenue, New York 17, N. Y.
Distributors Everywhere



14 WAYS TO CUT DOWN-TIME!

fabric reinforced

VEE-DAM PACKINGS*

**14 standard styles . . .
plus custom compounds
when necessary**

- Suitable for use with a wide variety of liquids and gases on heavy-duty industrial equipment
- Positive control of annular leakage at the joint
- Eliminate need for solid rings
- Effective sealing over a wide temperature range
- Pressure is never a problem with a Linear Vee-Dam

* The Vee-Dam design is patented

SEND FOR special bulletin with detailed technical data on VEE-DAM PACKINGS. Linear, Inc., State Road and Levick St., Philadelphia 35, Pa.



For More Facts Write No. 265 on Information Card—Page 32

Association News

(Continued from page 168)

Wurster, director of purchases, Wyandotte Chemicals Corp., told the large audience attending the Annual Winter Conference of the Chemical Buyers Group, National Association of Purchasing Agents, in New York recently.

Wurster was a member of a four-man panel which discussed various phases of "Value Analysis—Factors To Consider." Wurster spoke on chemicals; Thomas Dillon, associate editor, **PURCHASING** Magazine covered transporta-



Thomas Dillon

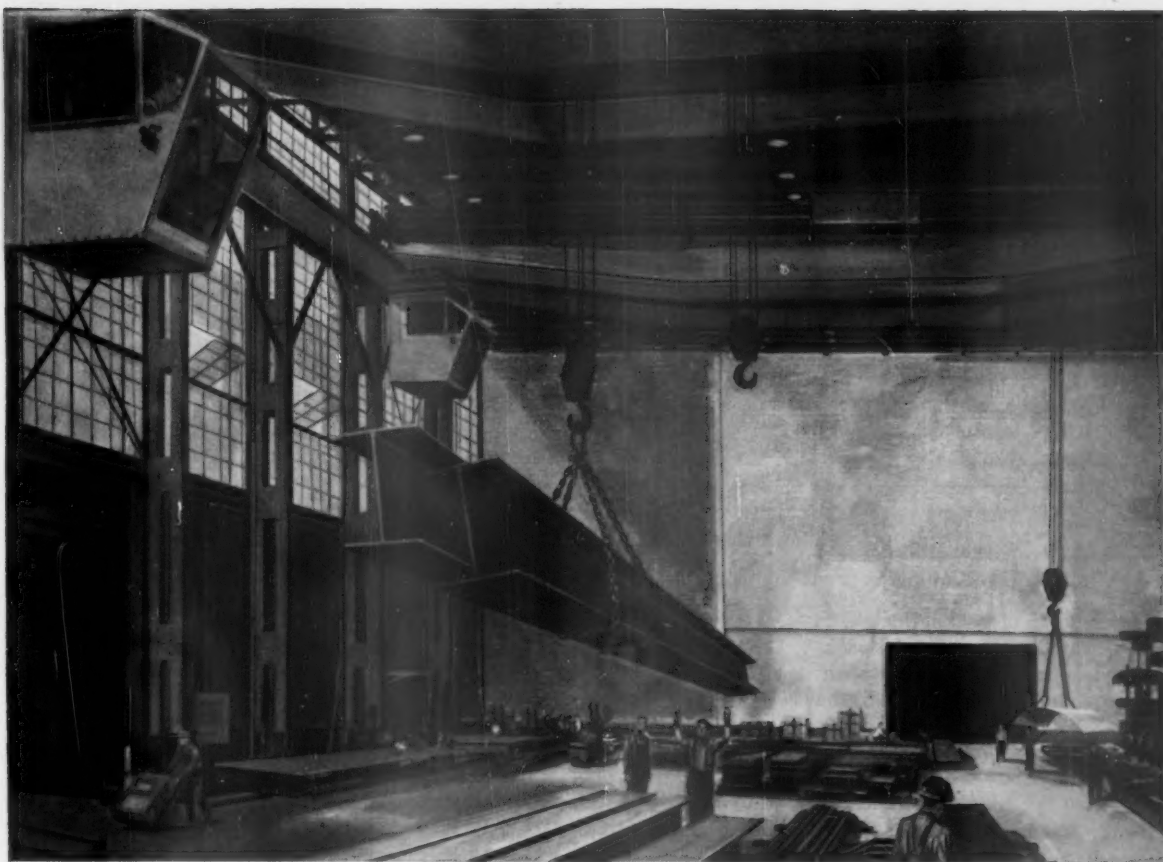
tion; R. W. Sparrow, material handling engineer, Carrier Air Conditioning Co., discussed materials handling; and W. F. Jacobi, director of packaging engineering, Union Bag-Camp Paper Corp., talked about packages.



Arthur C. Curran

In discussing value analysis in transportation, Tom Dillon told the group, "Each carrier you use should earn his keep by offering something that few other carriers can offer. Lower rates, broad area coverage, damage-free handling of shipments, unusual interest in

(Please turn to page 172)



TONS TO MOVE...SCHEDULES TO BEAT...BEARINGS MUST ROLL!

When the push is on, plant equipment must move at top speed. There's no time for machinery to act up, require excessive maintenance. That's why industry after industry relies on the bearing performance they've learned they can take for granted—Bower Roller Bearings for the heavy industrial machinery they make or operate. Bower-developed design advantages plus painstaking precision control reduce bearing failure and

maintenance to an absolute minimum. What's more, the built-in durability of Bower bearings helps keep machinery operating at peak efficiency, even under the most rugged conditions. For *your* bearing requirements—for new equipment or for replacement—choose from Bower's complete line of tapered, cylindrical or journal roller bearings. Bower Roller Bearing Division, Detroit 14, Michigan.

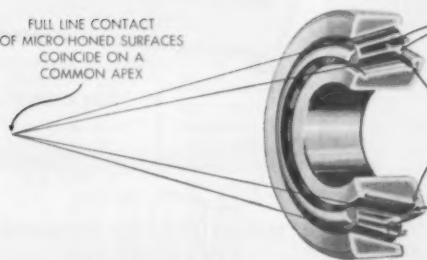
BOWER
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DIVISION OF
FEDERAL-MOGUL-BOWER
BEARINGS, INC.

IMPROVED DESIGN INSURES TOP ROLLER BEARING PERFORMANCE

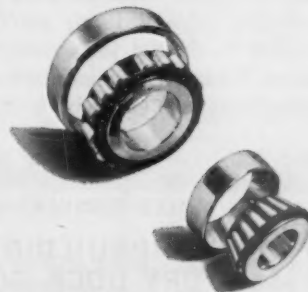
FULL LINE CONTACT
OF MICRO-HONED SURFACES
COINCIDE ON A
COMMON APEX



LARGER TWO ZONE CONTACT
INSURES CORRECT ROLLER
ALIGNMENT

GENEROUS OIL RECESS PROVIDES
POSITIVE LUBRICATION FOR
ROLLER HEADS

HIGHER RIB REDUCES
UNIT PRESSURE



Association News

(Continued from page 170)

servicing your account, and consistently good service are what you should get from a carrier."



James R. McCaffrey

On the cost of packaging, W. F. Jacobi stated, "The cost of a package and being able to control that cost is more important than the fact that every package is 'a silent salesman.' The package will aid in selling, but be sure to look at the cost."

R. W. Sparrow, covering mate-

rials handling told the group: "Materials handling adds nothing to the product except cost." For this reason materials handling should be a primary target from the value analysis viewpoint.

Albert J. D'Arcy, Union Carbide Corp., served as moderator for a morning panel program on "Spot Versus Contract Chemical Buying." Members of the panel



James W. Nagle

were: Robert C. Boltz, sales manager, Union Carbide Corp.; Arthur C. Curran, sales manager, Meer Corporation; James R. Mc-

Caffrey, purchasing agent, Sun Chemicals Corp.; and James W. Nagle, purchasing-chemicals, Shell Oil Co.

J. W. McNeil, manager, chemical procurement department,



J. W. McNeil

Pittsburgh Chemical Co., filled out the morning program with a talk on "What's More Important Than Price?"

V. E. Johnson, Chas. Pfizer & Co. was conference chairman and J. M. Brady, S. B. Penick & Co. was in charge of arrangements.

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When you need machine work or specially built machinery of any kind, you'll find Sun Ship qualified to do the job exactly to your specifications. We have machine tools of every size, and the facilities and skills born of long experience.

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Longer wear in every pair! Available in various sizes, gauges, lengths, colors and surface finishes. Natural rubber or genuine Dupont neoprene latex. Contoured fingers for more comfort, better fit.

**EXCLUSIVE PATENTED
FIRMGRIP®**
SAFETY GRIP
MOULDED INTO FINGERS
AND PALM

SEND FOR
CATALOG
NO. G-12
of complete
glove line

**FREE
TEST OFFER!**
Write us on your
firm's letterhead
for sample gloves
for test pur-
poses.

SEIBERLING LATEX PRODUCTS
New Bremen, Ohio

For More Facts Write No. 268 on Information Card—Page 32

Marsh Makes It!

If it's a pressure gauge, dial thermometer, or needle valve, Marsh makes it...makes it in every form to suit every need...makes it better in the opinion of thousands of discriminating users. Only a few key products are illustrated here, but hundreds are described in Marsh Catalogs. Ask for information covering the product or products in which you are interested.

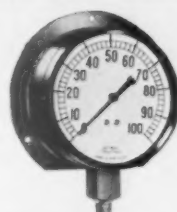
PRESSURE GAUGES



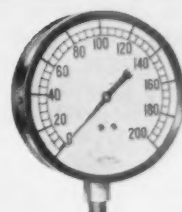
"Mastergauge"—the world's most effective pressure gauge for extreme service.



"Master-test"—"Master-gauge" quality in a gauge for services requiring high accuracy.



Quality series—second only to "Mastergauge" and "Master-test" for tough conditions.

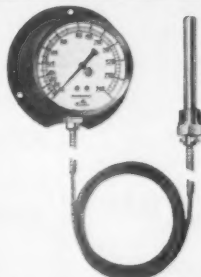


Standard series—best moderate-priced gauge for run-of-plant conditions.

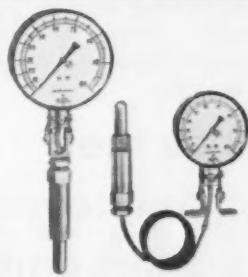
DIAL THERMOMETERS



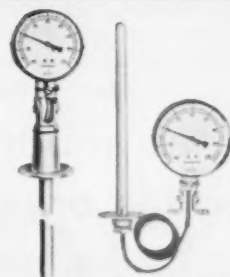
Vapor tension thermometers—direct mounted type. Many sizes; ranges.



Distant reading thermometers—vapor-tension and gas filled types in many sizes; ranges.

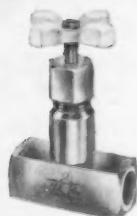


Piping thermometers—specially designed for piping. Types for all purposes, including distant reading.



Duct thermometers—specially designed for all conditions including distant reading.

NEEDLE THROTTLING VALVES



Alloy steel—complete series of sizes and patterns. Pressures up to 10,000 psi.



416 Stainless steel—complete series of sizes and patterns in 416 stainless. Pressures up to 10,000 psi.



316 Stainless steel—complete series of sizes and patterns in 316 stainless. Pressures up to 6,000 psi.



Panel mounted—all valves—alloy steel, 416 stainless, and 316 stainless—available in panel mounted types.

MARSH

MARSH INSTRUMENT COMPANY, Dept. G, Skokie, Ill.

Division of Colorado Oil and Gas Corporation

Marsh Instrument & Valve Co., (Canada) Ltd., 8407 103rd St., Edmonton, Alberta, Canada.

Houston Branch Plant, 1121 Rothwell St., Sect. 15, Houston, Texas.

Eastern Seaboard Warehouse: Marsh Instrument Company, 1209 Anderson Ave., Fort Lee, N.J.

Association News

European Trading Is Topic At Cleveland

"We must face the fact that the political and economic union of the European Common Market will soon become a reality and we should use every opportunity to make it work for us and not against us."

George F. Sullivan, editor of *The Iron Age*, told members and guests of the Cleveland Association of Purchasing Agents that foreigners need dollars to buy from us. To get these dollars, he said, they must first earn them by selling their goods here.

During his discussion of the topic "The European Common Market—Threat or Opportunity", Sullivan said high tariffs might gain some acceptance by organized labor, but the result would be worldwide chaos.

In summing up, he said "I think we have to assume that the Common Market countries will succeed in creating in Europe a trad-

ing area the size of the United States.

"This will mean higher living standards, but it will also bring a change in tariffs. In some cases our only solution will be to get inside that tariff wall rather than trying to go over the top. That means greater U. S. investment in the Common Market."

Typical Purchasing Day Described At Wilmington

Buyers and sellers got together recently in Wilmington, Del. for their annual dinner meeting. Hosts for the occasion were members of the Purchasing Agents Association of Wilmington.

Guest speaker was W. George Gress, director of purchasing, Gillette Razor Company, Boston. Mr. Gress is a former salesman and so, was well qualified to speak before this group.

The Boston executive explained to his audience why the purchasing man may sometimes have a harried look. The evidence pre-

sented was a description of a P.A.'s typical day.

"The average buyer, in the course of a day, will see more salesmen than the average salesman will see customers. He will interview from 6 to 12 vendors. In addition, he follows-up outstanding orders to make sure they arrive on schedule, or if they are late, he gets immediate action.

"If he considers buying anything that is off the beaten track, he has to take time out to sell the product and the reliability of the vendor to the using department. He will answer about 20 telephone calls. He will make at least 20 calls to people both inside and outside the company.

"He has to check and approve a stack of material invoices and to reconcile any differences. He will write several letters and will spend some time each day arbitrating quality differences resulting from faulty materials."

E. L. Morris, Hercules Powder Co., president of the Purchasing Agents Association, presided at the meeting.

TOM BIGBEE SAYS:

"as important as the
coffee break to employee morale
... clean, neat washrooms!"



Washroom maintenance is easier and more economical with Marathon industrial towels, tissue, and attractive metal dispensers designed to discourage waste and pilferage. Marathon washroom products are extra absorbent, doing the job better with less. The twin-roll tissue dispenser reduces waste and provides neater, cleaner washrooms with half the maintenance time. Ask your Marathon paper merchant for full details.

marathon

A Division of American Can Company
MENASHA, WISCONSIN

Single-, multi- or C-fold towels, bleached or unbleached.
Service Roll or Dorsette Facial Grade Tissue. Dispensers.

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**This Delrin part
saved 20¢
per
pump**



**Custom
molded
by CMPC**

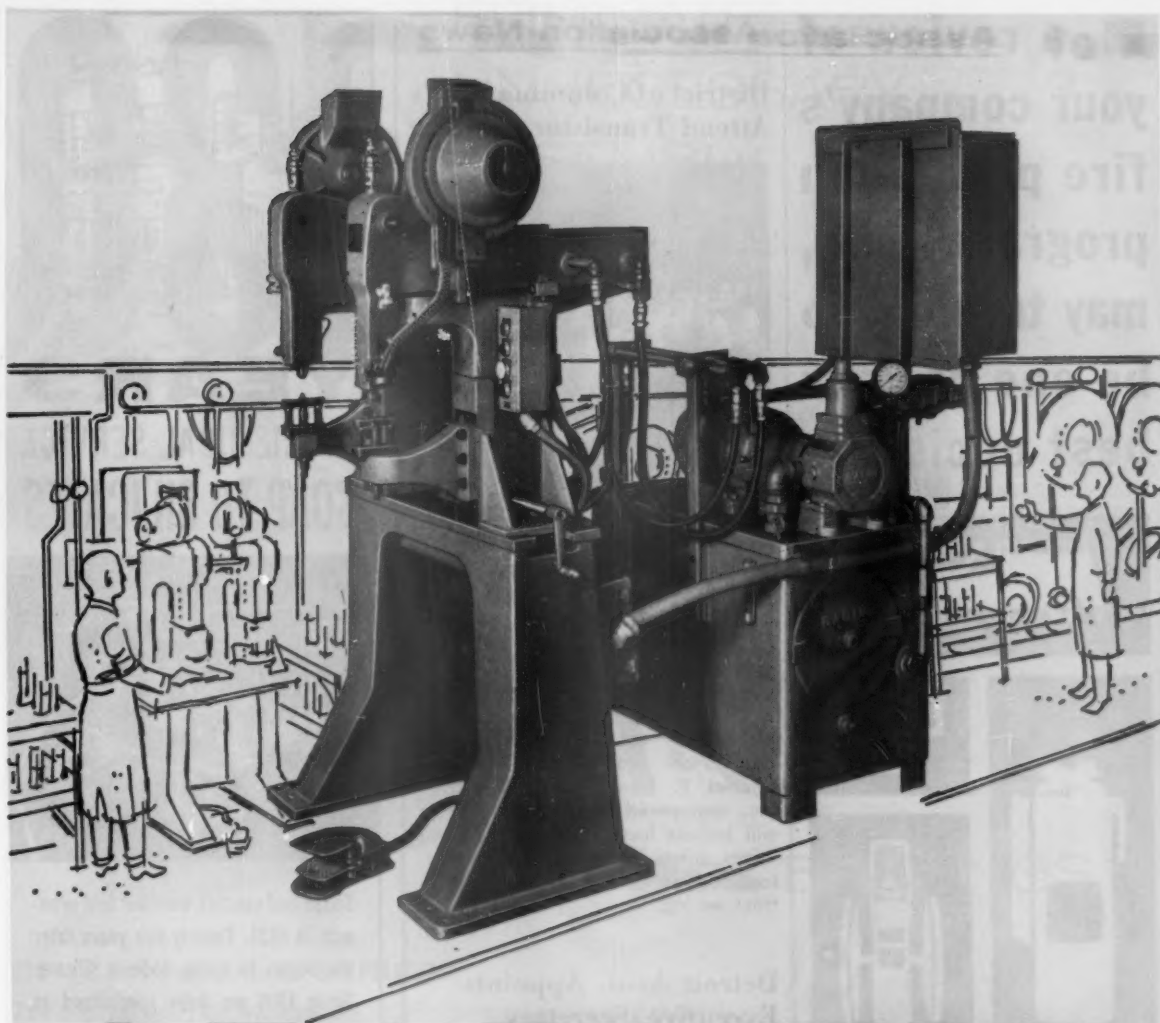
APPLICATION: Volute and venturi assembly for Clayton Mark "Mitey Mite" water pump. Brass and cast iron assembly replaced by injection molded Delrin.

ADVANTAGES: CMPC-molded part eliminates all machining operations . . . parts delivered production line ready at a per-unit savings of 20¢. Smoother Delrin surface reduces friction . . . increases pumping efficiency 5%.

Specify CMPC . . . custom plastic molders for over 40 years.

**CMPC CHICAGO MOLDED
PRODUCTS CORPORATION**

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A T-J RIVITOR

on your production line
means higher production rate . . . lower unit cost!

T-J Rivitors and Clinchors are designed, engineered and manufactured to conform and operate efficiently on today's high-speed production lines. For whatever your product . . . if it demands a fastening assembly procedure . . . a T-J riveting or clinching machine adds to its high quality standards by their ability

in providing long, rugged service-free life.

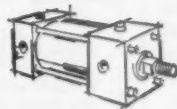
Many standard designs to choose from . . . or a T-J can be custom designed for your exact requirements. Write Tomkins-Johnson, 2425 W. Michigan Ave., Jackson, Mich., today. Ask for Rivitor and Clinchor Bulletin No. 646 or Clinchor Bulletin No. 555.



RIVITORS



CLINCHORS



CYLINDERS



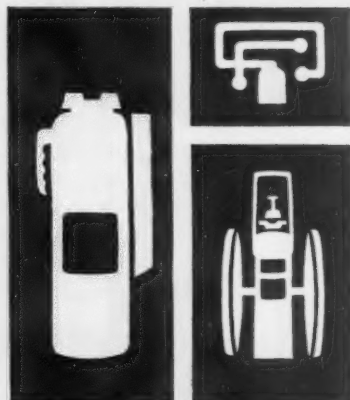
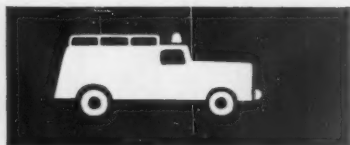
CUTTING TOOLS



TOMKINS-JOHNSON

JACKSON, MICHIGAN

■ a review of
your company's
fire protection
program...now,
may turn out to
be one of your
best decisions



Write for our latest catalog describing Ansul's complete line of hand portable dry chemical, carbon dioxide and water extinguishers, wheeled, stationary, mobile units and automatic systems.

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ANSUL CHEMICAL COMPANY
1 STANTON ST., MARINETTE, WISCONSIN

For More Facts Write No. 273
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Association News

District of Columbia P.A.'s Attend Transistor Seminar



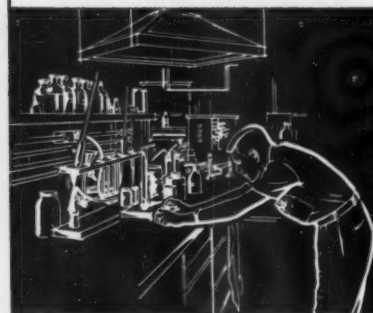
About 80 members of the Purchasing Agents Association of Washington, D. C. recently attended a two-hour lecture on transistors. Bruce Williams, industrial markets manager of Texas Instruments, Inc., was the guest speaker. The seminar was one of a series planned by the value analysis-standardization committee. Chairman Charles E. Emmer, ACF Industries, Inc., announced that future seminars will include lectures on diodes, laminates, printed circuit boards connectors and government clauses in contract writing.

Detroit Assn. Appoints Executive Secretary



Board of Directors of the Purchasing Agents Association of Detroit recently announced the appointment of G. Ray Walton as executive secretary of the Association and editor of the *Detroit Purchasor*. Mr. Walton, who has served the past thirteen years as recording secretary of the Association, fills the vacancy caused by the retirement of Les Auberlin.

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IN CHEMICAL SERVICE
SOAP TO SILICATES



Soaps and candles were our first products in 1831. Twenty-five years later we began to make sodium silicate. Since 1904 we have specialized in silicates.

From the original use in household soaps, through research, silicates have been applied in many industrial processes...

Adhesives • cements • detergents • reactants • deflocculants dispersants • base for sols and gels coatings and films.

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SOLUBLE SILICATES

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KANSAS; RAHWAY, N.J.; ST. LOUIS, MO.; UTICA, ILL.

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PURCHASING

ELIMINATE
UNNECESSARY
ASSEMBLY
COSTS
with



*Replace improvised
units with readily
available precision
cam followers.*

MCGILL®
CAMROL® BEARINGS

CF (Cam Follower) SERIES

The original and still unsurpassed anti-friction roller bearing cam-follower bearing that adds efficiency at less cost to cam actuated, track and support roller applications. Built with full roller complement and integral stud, the CF series design provides high radial capacity and shock load protection in a compact roller with its own shaft. Easily applied and available in roller diameters of 1/2" to 4".

SCF SERIES.

Sealed to keep contamination out and lubricant in. It is dimensionally interchangeable with the CF bearings. A turned groove in the center of the outer raceway bore provides a permanent lubricant reservoir to approach life-time lubrication requirements. Can be easily re-lubricated.

CYR (Cam Yoke Roller) SERIES

The CYR series increases the adaptability of the CF bearing to all types of automatic machinery involving cam action or controlled-motion machine parts that require guide or support rollers. An inner ring replaces the stud for cam yoke roller mountings.

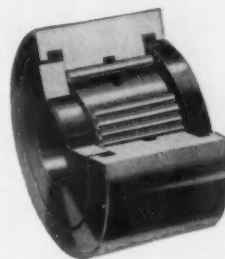
SCYR SERIES

This series provides a fully sealed Cam Yoke Roller type bearing. It is dimensionally interchangeable with the CYR bearings.

McGILL MANUFACTURING CO., INC., Bearing Division
550 N. Lafayette Street, Valparaiso, Indiana

for the ultimate in:

- RADIAL CAPACITY
- SHOCK RESISTANCE
- SPACE ECONOMY



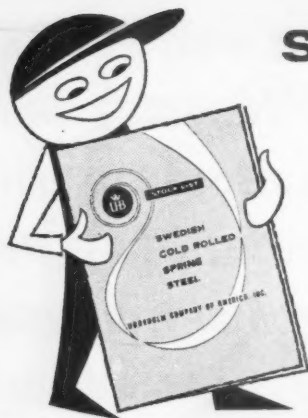
SCYR SERIES
(sealed)

Write for Catalog No. 52-A for full information on McGill's needle roller bearings, and cam followers. Ask about recommendations for high precision special ball and roller bearings.



engineered electrical products

MCGILL®
precision needle roller bearings



Send For Your **UDDEHOLM** Spring Steel Catalog- Stocklist

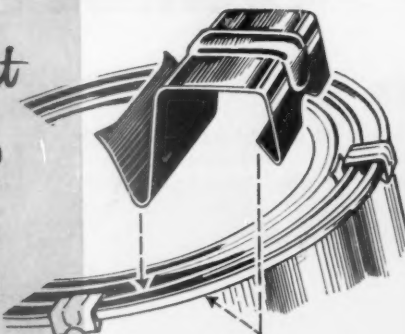
This 44-page booklet provides full information on all grades and sizes of fine UDDEHOLM SWEDISH Specialty Spring Steels. They are produced in our Swedish Mills, from high-purity iron ores. The excellent flatness, uniformity and close thickness tolerances of UDDEHOLM Spring Steels will give you a better product at less cost.

BLUE TEMPERED • ANNEALED Spring Steels

... in different grades, tempers and finishes are some of the types stocked in our modern warehouses. Sizes range from .001" to .125" thick, 1/8" to 16 1/4" wide. Slitting and edging facilities are also available.

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Serving American Industry for more than 70 years
Branch Offices & Warehouses—Chicago, Ill.—Cleveland, O.—Detroit, Mich.—Los Angeles, Calif.—Newington, Conn.—Philadelphia, Pa.—In Canada—Uddeholm (Canada) Ltd., Montreal—Toronto
For More Facts Write No. 276 on Information Card—Page 32

Now you can-- *Seal Cans Fast* with Post Office Approved **FREUND TRIPLE-GRIP** **Can Clips**



If you ship in friction top cans--it will pay you to seal the lids with Freund Triple-Grip Can Clips. Once applied --they stay put. And anyone can quickly and easily apply them--no skill or experience required.

SEND FOR SAMPLES

For convincing proof--you're invited to try Freund Triple-Grip Can Clips and see for yourself. Samples, simple instructions, and low quantity prices--yours for the asking. Use your letterhead or handy coupon below.

FREUND CAN **COMPANY**

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4445 Cottage Grove Ave.
Chicago 53, Ill.

FREUND CAN COMPANY
4445 Cottage Grove Ave.
Chicago 53, Illinois
Without obligating us in any way--send us samples of Freund Triple-Grip Can Clips so we can try them.
YOUR NAME _____
FIRM NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____
Date _____ 7

For More Facts Write No. 275 on Information Card—Page 32

Association News

Public Utility Buyers Discuss Vendor Relations

The official theme of the 30th annual mid-winter conference of the Public Utility Buyers' Group, National Association of Purchas-



Robert B. Gear, former president of the Public Utility Buyers' Group, made the opening remarks at the recent Detroit conference. He indicated that good vendor relations had to be a "two-way street".

ing Agents, held recently in Detroit, was "Economic Challenge of Growth." But a subsidiary title might have been: "What Happened to the Electrical Equipment Market?" By allusion and direct reference, this subject entered the



Clarence H. Linder, vice president of General Electric, reviewed the problems and accomplishments of the electrical equipment industry.

speeches and informal conversations of buyers and suppliers.

Suppliers indicated that the electrical equipment industry has been clamped in a profit squeeze caused by substantial over-capaci-

(Please turn to page 181)

For More Facts About Ad
on Facing Page Write in No. 277→

116 reasons why we can help you put your finger on the right plastic faster



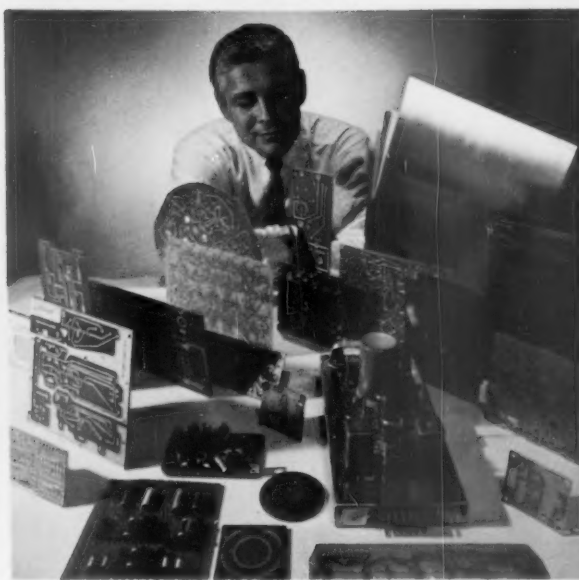
85 PHENOLITE® laminates...



3 thermoplastics—nylon, DELRIN,* PENTON†



16 grades of Vulcanized Fibre...



12 grades for printed circuits...

This will give you an idea of how surely National can help you pinpoint exactly the plastic you want. National has the broadest line in the industry, including standard forms, precision-fabricated parts, and a huge stock of many grades ready for immediate shipment. For

fast help, samples, or more information, contact your nearby NVF sales office. You'll find the 'phone number in Sweet's Product Design File 2b/Na. Or write NVF, Dept. T1, Wilmington, Del. It's a direct line to the one best material per dollar of design performance.



NATIONAL VULCANIZED FIBRE COMPANY
WILMINGTON 99 DELAWARE
In Canada: NATIONAL FIBRE COMPANY OF CANADA, LTD., Toronto 3, Ontario

* DELRIN IS A DU PONT TRADEMARK FOR THEIR ACETAL RESIN. * † PENTON IS A HERCULES TRADEMARK FOR THEIR CHLORINATED POLYETHER RESIN



This man is armed...

... armed with the most complete line of cutting tool materials* — and with years of experience and practical ideas. He's your V-R representative — eager and ready to work shoulder to shoulder with your production team for increased efficiency and greater profits on every machining application. Purchasing Agents everywhere are finding that it pays to make Vascoloy-Ramet their first choice for all their cutting tool needs. Call your V-R representative today.

**V-R is the single source for carbide, ceramic and Tantung cutting tool materials.*



CREATING THE METALS THAT SHAPE THE FUTURE

VASCOLOY-RAMET

872 MARKET STREET • WAUKEGAN, ILLINOIS

A-823

Association News

(Continued from page 178)

ty and price buying by customers. However, utility buyers defended their commitment to secure the best possible buy for their companies. As a speaker pointed out, the present capacity of the electrical equipment industry can meet



New 1961-1962 chairman, Frank E. Baxter, opened the Monday morning session with greetings to conference attendees. More than 650 registered for the meeting.

demands for the next five years.

One purchasing agent had this to say: "Is the buyer obligated to pay more than he need to so that supplier distress will be relieved? Naturally, we would like to see vendors make a fair profit. But how much more should we pay?"

"If over-capacity has developed in a supplying industry, it may be best to allow natural competitive forces to reduce it to more efficient and economical levels. We are a competitive industry, seeking to keep our power prices at the lowest possible level. Why should the buyer be expected to subsidize the status quo?"

On the other hand, a supplier declared that "Our costly and generous research has resulted in equipment which has kept utility costs to a minimum. In fact, the electrical equipment industry has designed units with such improved performance that fewer units can handle the same loads. This has led to excess capacity in our industry.

"Should we now be penalized for this? Without fair profits, suppliers may have no alternative but to reduce research spending and

(Please turn to page 182)

MARCH 13, 1961

the ONE Caster Source is Faultless



Faultless manufactures over 10,000 caster types, sizes, and varieties . . . casters for every conceivable purpose . . . *The Casters* to move your products easily, in quantity, economically! Faultless Casters are engineered and tested to roll smoothly and efficiently under any load from 15 lbs. to 15,000 lbs. per caster. And Faultless manufactures a complete selection of swivel, rigid, plate, and stem casters, plus a wide variety of special application casters. This complete selection from one manufacturer—Faultless Caster Corporation—includes *The Casters* to reduce materials handling costs and increase efficiency at your plant.

Your Faultless Industrial Distributor, or your nearby Faultless Sales Engineer can supply you with detailed information on the complete Faultless Caster line. Also, your Faultless Distributor maintains a substantial stock of Casters for immediate shipment.



Faultless Caster Corporation

EVANSVILLE 7, INDIANA

Branch Offices in principal cities of the U.S.; see the Yellow Pages of the telephone book under "Casters." Canada: Stratford, Ontario

For More Facts Write No. 279 on Information Card—Page 32

181



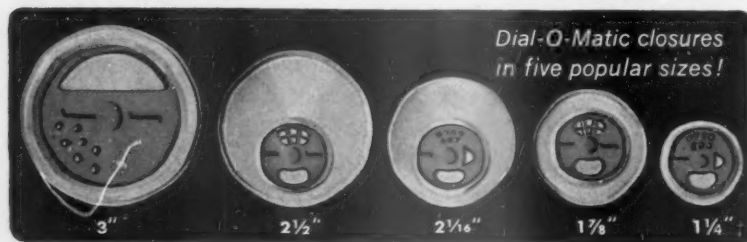
CLEVELAND CONTAINERS

The Choice of a First Prize Brand!

These "Pleasoning" cans are examples how excellence in design can really package and sell a competitive product!

Each of these containers has a quality fibreboard body with a brilliant foil wrapper. The patented plastic Dial-O-Matic top sifts, pours, measures and seals the contents. The metal bottom is decorated to harmonize with the color combination. Illustrated are the economy 4 oz. size, and the small 1.3 oz. size, (1 1/4" in diameter by 3" high). The smaller size is suitable for sampling many kinds of products.

For better business, let our Engineering Department help you redesign your product's package—at low unit cost! New Packaging Brochure sent upon request.



*Dial-O-Matic closures
in five popular sizes!*

THE CLEVELAND CONTAINER COMPANY

Plants and Sales Offices:

Cleveland
Chicago
Memphis
Dallas
Los Angeles
Plymouth, Wis.
Jamesburg, N. J.
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ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED

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For More Facts Write No. 280 on Information Card—Page 32

Sales Offices:

Detroit
New York City
West Hartford
Rochester, N. Y.
Washington, D. C.

Abrasive
Division
at Cleveland

Association News

(Continued from page 181)

quality of equipment."

One of the executives addressing the conference was J. M. Warner, purchasing agent for Philadelphia Electric Co., who spoke on "Lower Capital Equipment Costs: A Key to Future Growth." He indicated that capital costs for new equipment are "of paramount significance" and that lower costs could offset power rate increases or even reduce rates. This would broaden the use of electricity, expanding the market for both utilities and their suppliers.

Warner pointed out that a 5% reduction in the cost of a \$1 million transformer, bringing its cost



John M. Warner, first vice chairman, stressed that lower costs for capital equipment were vital to the expansion of the power market.

to \$950,000, would yield a 10% increase in common stock earnings. Thus each dollar of decreased capital costs would result in increased earnings of \$1.72 over the life of the equipment. If savings were passed on to the consumer, each dollar of lower capital costs would mean a \$3.86 reduction in rates.

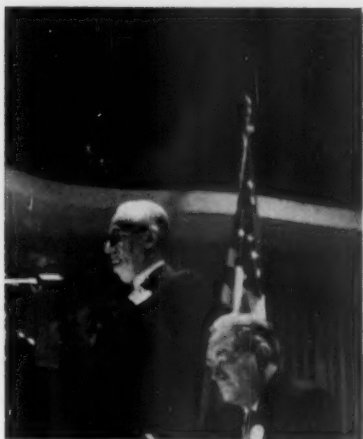
C. H. Linder, vice president, General Electric Co., and W. L. Wallace, vice-president, Allis-Chalmers Mfg. Co., discussed the problems and achievements of the electrical equipment industry.

In his address, Paisley Boney, J. P. Stevens & Co., N.A.P.A. president, hinted that association dues may soon have to be raised to \$25 per year to cover spiralling costs of the association. He also stated that a proposal may be

made to change the name of the N.A.P.A. to the National Association of Purchasing Management.

Public Utility Buyers' Group officers elected for 1961-1962 are: Frank E. Baxter, chairman, Pacific Gas & Electric Co.; John M. Warner, first vice chairman, Philadelphia Electric Co.; Basil L. Nelson, vice chairman, Northern States Power Co.; George Cruickshank, vice chairman, Michigan-Wisconsin Pipe Line Co.; and W. C. Allen, secretary treasurer, Utah Power & Light Co.

N.A.P.A. President Speaks to Jersey P.A.'s



Paisley Boney, president of the National Association of Purchasing Agents, addresses a recent meeting of the Purchasing Agents Association of North Jersey. Seated is Fred Esser, 8th district vice president. Before the dinner meeting, Ray Weckstein, G-V Controls, Inc., led a forum discussion on "Reports from Purchasing."

Purchasing Courses Offered Boston P.A.'s

A series of special purchasing courses are underway at Northeastern University in Boston. The program of two-hour sessions is being offered with the cooperation of the New England Purchasing Agents Association.

It consists of 12 weekly sessions and will cover topics, such as "The Psychology of Purchasing," "Inventory Management," "Data Processing," and "Inter-departmental Relations."

MARCH 13, 1961



LESS LINER, MORE COATING, BETTER PROTECTION, LONGER WEAR . . . NORTH PVC GLOVES

These features, combined with better fit, more comfort, greater dexterity, and maximum resistance to chemicals, oils, greases, etc., mean lower coated glove costs, higher worker output.



For outstanding hand-to-shoulder protection with an uncoated material, insist on Jomac terry cloth gloves, hand guards, pads, mitts and safety sleeves. The loop-pile fabric is long-lasting, cut, abrasion and heat-resistant—and washable.



To keep dry, comfortable and safe in foul weather, insist on North PVC Wet-Weather Clothing . . . tough, flexible, nonaging, waterproof, resistant to abrasion and most oils, greases and chemicals. Available in high-visibility safety yellow.

WRITE TODAY FOR FOLDER DESCRIBING THESE
OUTSTANDING PROTECTIVE PRODUCTS BY JOMAC

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Jomac Inc., Dept. F
Philadelphia 38, Pa.

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"JOMAC Sells Quality . . . and Quality Sells JOMAC!"
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RIDGID®
65R-TC
RATCHET THREADER
 with new True-Centering
 Workholder

Gives Better Threads Faster 4 Ways!

Here's Why:

One set of dies threads 1", 1¼", 1½" and 2" pipe and conduit... no dies to change. • Fast-to-set, True-Centering Workholder

centers dies for true threads every time • Easy adjustment for accurate "drip" threads • It's jam-proof... automatic kick-out —prevents jamming.

RIDGID 65-RC with Cam-Type Workholder Also Available.

Call your Distributor today. For your convenience, he maintains a complete stock of RIDGID Work-Saver Pipe Tools and parts!

RIDGID

The Ridge Tool Company, Elyria, Ohio, U.S.A.

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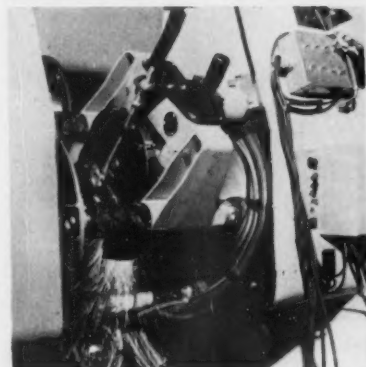
News

Develop Automatic Pipe Line Welding Process

A major new process makes automatic pipe line welding in the field a reality for the first time.

The key to the process, developed by Esso Research and Engineering Company, is a welding device that clamps over and welds two lengths of pipe 20 times faster than present hand welding techniques. According to the company, the automatic welder is "perhaps the fastest and most practical field pipe welding device in the world."

The automatic process allows three men to do the work for which 20 are currently required. Only men needed are a welding




The new automatic welding machine completes welding 20 times faster than present hand welding methods. The machine is clamped over the pipe ends and its arc welder makes a swing around the pipes.

technician, his assistant, and a caterpillar-tractor driver.

This process and automatic welder are the result of several years of research and development work. The welder is designed for use with four-, six-, and eight-inch diameter pipes. But the entire process can be easily adapted for massive 30-inch and larger diameter piping.

In the new process, steel pipe is strung along the ditch in which it is to be buried. When the automatic welder is positioned over the pipe ends, it firmly clamps in place with its dual prongs. An

(Please turn to page 186)



PURCHASING TELLS MANAGEMENT

How TEXACO'S NEW "STOP LOSS" PROGRAM helps cut plant-wide maintenance costs as much as 15%

A Texaco "Stop Loss" Program organizes lubrication throughout the plant—from purchasing on through actual application. By specifying multi-purpose lubricants and by eliminating duplication, a "Stop Loss" Program can reduce the number of lubes needed by as much as 50%. By streamlining purchasing procedures, the Program can cut purchase orders by as much as 80%.

Best of all—by assuring proper lubrication to every piece of equipment throughout the plant, a "Stop Loss" Program helps extend parts life... eliminate unscheduled downtime. Result: plant-wide maintenance savings up to 15%.

Why not find out how your operation can benefit from a "Stop Loss" Program? It's complete, easy-to-install and especially adaptable to purchasing's point-of-view. Our free booklet describes the Program in detail. Get your copy by writing:

Texaco Inc., 135 East 42nd Street, New York 17, N. Y. Dept. P-22.

TUNE IN: Texaco Huntley-Brinkley Report, Mon. through Fri. NBC-TV

TEXACO 
Throughout the United States
Canada • Latin America • West Africa

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

News

(Continued from page 184)

air-driven abrasive cutting wheel then slices a minute sliver from each of the pipe ends in two circular sweeps at the pipes.

An arc welder follows in the track of the cutter and performs the weld. The continuous process needs only two motions of the cutter and two of the arc welder to do the job.

On eight-inch pipe, the weld is completed in one minute and is as strong as manual welds requiring up to 20 minutes. After the cutter prepares the pipe ends, no further treatment of any type is needed.

Pipe lines are the most important means of moving petroleum overland in use today. In 1961, an estimated 27,492 miles of pipe will be laid throughout the world. A weld will be required every 50 feet of this pipe.

The pipe line process was tested during actual pipe line construction operations of the Humble Pipe Line Company. Both Hum-

ble and Esso Research and Engineering Company are affiliates of Standard Oil Company (N.J.)

Also participating in the development work was Rolfs-Cummings Company. Battelle Memorial Institute and Air Reduction Sales Company—which designed and built the prototype automatic welder—cooperated in the research.

1960 Steel Shipments Total 71.4 Million Tons

Shipments of finished steel from mills totaled 71.4 million tons last year, reports the American Iron and Steel Institute.

The 1960 figure marks a 2.6% increase over the 69.4 million tons shipped in 1959. However, it is a 16% drop from the record 84.7 million tons shipped in 1955.

1960 shipments of electrolytic tin plate set a new record. A total of 5,075,502 tons were delivered, surpassing the previous high of 5,040,190 tons recorded in 1958.

Galvanized sheet shipments also set a record last year. Some 3,056,-

996 tons were sold, compared with the former high of 2,957,991 tons in 1956.

Cold rolled sheets was the principal product shipped during the year. A total of 14,466,261 tons were delivered, comprising 20.3% of total steel shipments.

Some of the other major steel shipments include: hot rolled sheets—7,990,748 tons, comprising 11.2% of the total; hot rolled bars (including light shapes)—6,915,435 tons, 9.7% of the total; and plates—6,131,587 tons, 8.6% of the total.

Direct mill shipments for automotive purposes amounted to 14,616,666 tons of finished steel products last year. This was the third highest year on record and represents 20.5% of the total.

Other market classifications with large percentages include: warehouses and distributors—12,493,477 tons (17.6%); construction (including maintenance)—9,680,619 tons (13.6%); containers—6,428,123 tons (9%); and machinery, industrial equipment, and tools—3,956,799 tons (5.6%).



PLASTIC PROBLEMS?

LET THE ENGINEERING EXPERIENCE OF
THE OLDEST EXCLUSIVE EXTRUDER OF
THERMOPLASTIC SHEET HELP YOU...

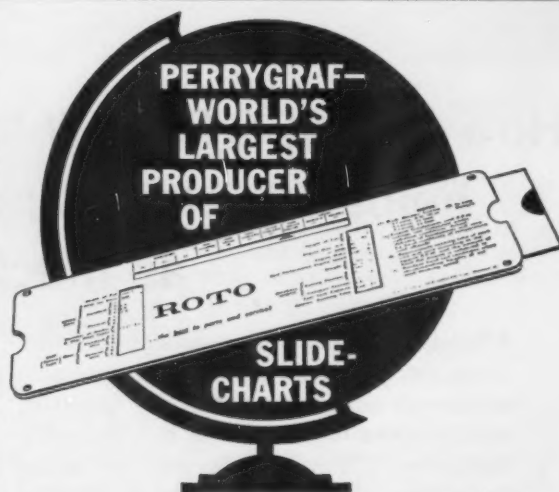
By consulting the experts at Midwest Plastic Products, you enjoy the benefit of more than a quarter century of experience with hundreds of end-products. Look first to Midwest for practical suggestions to insure products with every desired quality. Easily formed, dimensionally stable MIDLON materials are available in choice of color, and custom-cut to your specifications. High impact polystyrene, cellulose acetate, cellulose acetate butyrate, polyethylene and acrylic for your needs. Prompt delivery assured from our central location.



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CHICAGO HEIGHTS, ILLINOIS

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For Free
Price
Calculator and
Catalog!

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Two hundred million since 1932! More Slide-Charts for more people than any other company in the world.

Two Modern Plants, one geared to runs of millions, the other to hundreds. Finest facilities for accurate printing and assembly. Deliveries as high (in a pinch) as a million per week. Prices consistent with quality work and dependent on quantity and materials from pennies to dollars.

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For More Facts About Ad
on Facing Page Write in No. 285→



Permacel Cloth Tapes are made
in a variety of strengths,
thicknesses and backings for every type
of sealing, holding and protecting.

PERMACEL®

NEW BRUNSWICK, NEW JERSEY • TAPES • ELECTRICAL INSULATING MATERIALS • ADHESIVES

... now Byers wears 3 hats



BYERS—single source for three important piping materials—can save you time, money

Byers tubular product line now includes steel as well as 4-D Wrought Iron and PVC, and we can now offer these specific advantages to pipe buyers.

LOWER COST—combining steel and Wrought Iron pipe in one carload; one purchase order; one invoice; one shipment; lower shipping charges.

ON-TIME DELIVERY—large inventory enables us to meet delivery dates of any steel pipe producer.

BYERS TECHNICAL ASSISTANCE—is also available to help you arrive at the most efficient and economical solution to piping problems. Here are the general areas covered by the Byers line:

4-D WROUGHT IRON PIPE—is the proven material in such corrosive services as brine lines, condensate and

drainage systems, to mention just a few important areas.

PVC (Polyvinyl Chloride) PIPE—for use in areas where acids and alkalies are deadly to metal pipe, also where electrolysis causes early metal pipe failure.

STEEL PIPE—is the workhorse of the piping field, used where initial economy is a major consideration.

Additional details on one or all three piping products can be obtained by writing A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.

PIPING PRODUCTS: Wrought Iron • PVC • Steel
ROLLED PRODUCTS: Plates, Billets and Bars in Wrought Iron, Stainless and Alloy Steel



... and the plus factor is **BYERS** 97 years of piping experience

For More Facts Write No. 286 on Information Card—Page 32

GAYLORD containers conform right down the line

One non-conforming container can jam your packaging line, increase production costs. Avoid this. Buy Gaylord containers that meet all your specifications, well within allowable tolerances. They arrive in uniform bundles, too.

Get the precise facts from your nearby Gaylord Man, today.



CROWN ZELLERBACH CORPORATION
GAYLORD CONTAINER DIVISION



IN CANADA • CROWN ZELLERBACH
CANADA LTD. VANCOUVER B.C.

HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

Purchasing People

(Continued from page 52)

William C. Auld has been appointed manager of purchasing for **Mobay Chemical Company, Pittsburgh, Pa.** In the newly-created post, Mr. Auld will be in charge of purchasing all materials and supplies for the company. He will continue to be located at Mobay's general offices in Pittsburgh. **E. F. Cupp**, plant buyer, will co-ordinate the purchasing of materials for the company's plant in **New Martinsville, W. Va.**

E. D. Carter has been named corporate director of material and procurement for the **Martin Company, Baltimore, Md.** **C. E. Gottschalk** succeeds Mr. Carter as director of material and procurement of the Baltimore Division of the company.

Last year Mr. Carter was one of seven men in the nation appointed by Senator Smathers (D., Fla.) to the Senate Military Procurement Advisory Committee. It is respon-

sible for study of Defense Department procurement practices and for drafting conclusions and recom-



E. D. Carter

mendations. Mr. Carter joined the company in 1939 as a factory helper and advanced through a number of supervisory positions. He entered the field of procurement in 1953 as manager of the subcontracting department. In 1957 he became assistant director of material and procurement for Martin-Baltimore, and in 1958 be-

came director. He is a member of the National Association of Purchasing Agents and has a law degree from the University of Baltimore night school.

The new purchasing agent for the **Township of Scarborough, Ontario, Canada** will be **A. L. Johnson**. Mr. Johnson has been city purchasing officer for the **City of Kitchener, Ontario**. He will be succeeded in Kitchener by **H. R. Selman**.

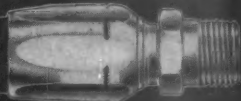
Raymond P. Spaeth has been named purchasing manager of **Detecto Scales, Inc., Brooklyn, N. Y.** Mr. Spaeth joined the company in 1943 as a buyer in the purchasing department.

J. M. Ravelle has been appointed director of purchasing and production for the **Industrial Timer Corp.**, and their **Line Electric Di-**

(Please turn to page 192)

PRESSURE PROBLEMS?

AEROQUIP 1508



Solve them with Aeroquip 1508 Spiral Wire Wrap Hose and Reusable Fittings

Handles up to 5000 PSI

at temperature ranges from -40°F. to $+200^{\circ}\text{F.}$

Aeroquip 1508 Spiral Wire Wrap Hose solves pressure problems. Engineered construction with spiral wrapping meets increased pressure requirements in a broad range of hydraulic applications. Aeroquip Spiral Wire Wrap Hose and Reusable Fittings are particularly recommended for systems subject to high surge peaks. They provide long service life under the most severe operating conditions.

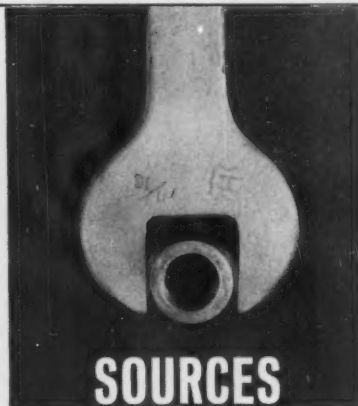
A fluid line specialist, your Aeroquip Distributor will give you a copy of Industrial Catalog No. 205 detailing the Aeroquip Spiral Wire Wrap Hose and Reusable Fittings best suited for your individual pressure problems. His telephone number is in the "Yellow Pages" under "Hose."

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Aeroquip products are fully protected by patents in U. S. A. and abroad

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SOURCES OF SUPPLY

Suppliers and sub-contractors in the Northern Plains can be pinpointed quickly by the Facilities Register, a unique electronic index of production facilities. Whether yours is a problem of finding new suppliers, contracting for idle machine time, shortening lines of supply, or obtaining better quality and service:

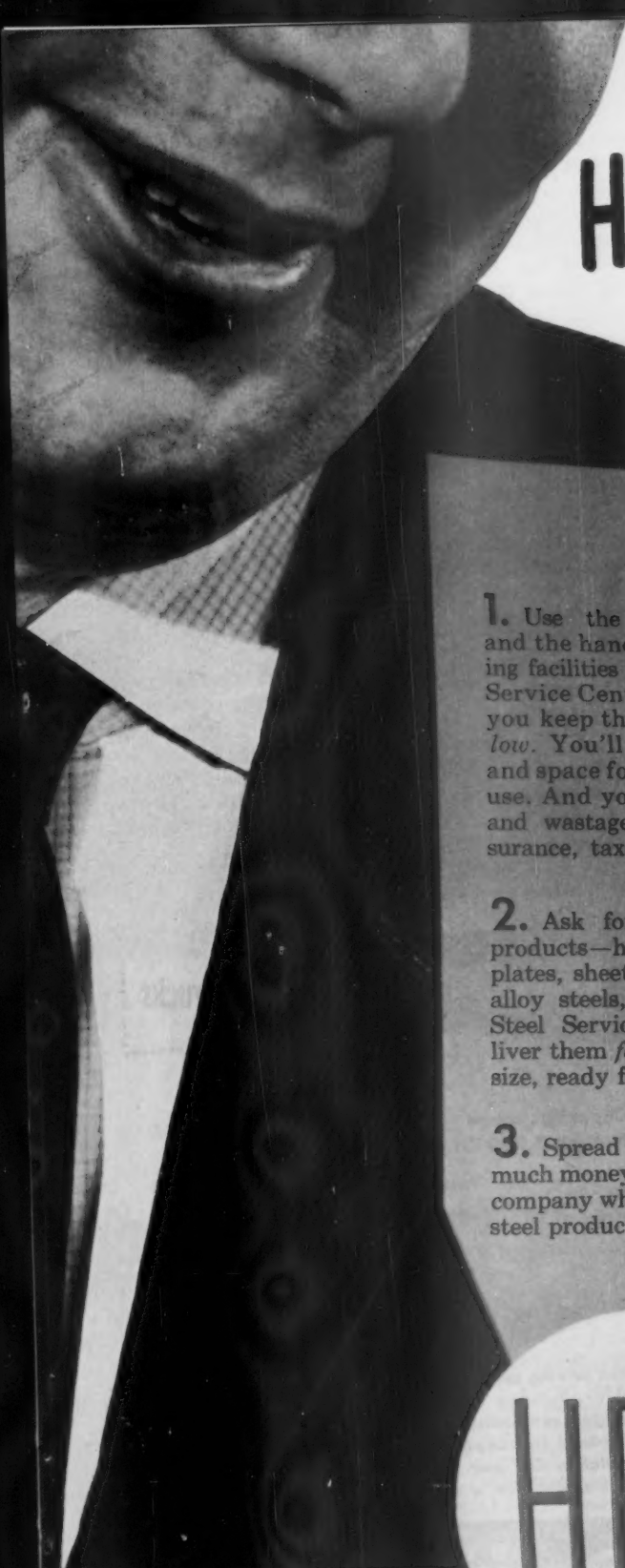
ASK THE MAN
FROM THE
NORTHERN
PLAINS



NORTHERN NATURAL GAS COMPANY

SERVING THE NORTHERN PLAINS □ GENERAL OFFICES: OMAHA, NEBRASKA

For More Facts Write No. 289
on Information Card—Page 32



How to Be a Hero

*(If you buy steel in small
or moderate lots)*

1. Use the steel inventory, and the handling and processing facilities of your local Steel Service Center. That will help you keep the low cost of steel *low*. You'll free your capital and space for more productive use. And you'll save on scrap and wastage, obsolescence, insurance, taxes, accounting.

2. Ask for Bethlehem steel products—high-quality shapes, plates, sheets, bars, tool steels, alloy steels, and others. Your Steel Service Center can deliver them *fast* . . . cut to exact size, ready for use.

3. Spread the word about how much money you're saving your company while buying such fine steel products.

HERO



for Strength
... Economy
... Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

BETHLEHEM STEEL



Purchasing People

(Continued from page 190)

vision, Newark, N. J. Mr. Ravelle moves up from purchasing agent and production manager of the parent company to fill the new position.

Succeeding Mr. Ravelle will be **Mrs. Elsie Jameson. Gil Zerbe** has been named purchasing agent for the Line Electric Division.

Woodall Industries Inc., Detroit, Mich., has named **Norman F. Krause** director of purchasing. He had been assistant purchasing director under **George K. Geisbuhler** who has retired after 27 years with the company.

The appointment of three executives to the purchasing department of **Hamilton Standard, Windsor Locks, Conn.,** has been announced. **Milton K. Adams** was appointed purchasing agent; **Howard Lawson** and **Herbert Boshea** were named procurement super-

visors.

Mr. Adams transferred to his new position from Pratt & Whitney Aircraft where he was a chief buyer in experimental purchasing. He is a graduate of St. Lawrence University and of the Albany Law School of Union College and University. Mr. Lawson, who will be procurement supervisor for jet fuel controls, was formerly president and owner of the Bradley Manufacturing Company in Windsor Locks. From 1947 to 1958, he was a member of Hamilton Standard's engineering staff. He is a graduate of Yale University. Mr. Boshea, who was named procurement supervisor for production propellers and starters, was previously the purchasing agent of the Robertshaw-Fulton Controls Company, Milford, Conn. He is a graduate of Tufts University.

Paul V. Hoppel has been named director of purchases of **Youngstown Kitchens, Warren, Ohio.** Mr. Hoppel has been director of pur-

chases for Lighting Products, Inc., Highland Park, Ill. since 1957. He was educated at the University

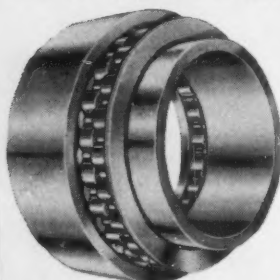


Paul V. Hoppel

of Pittsburgh and Northwestern University. He is chairman of the Metal Manufacturers Group of the Chicago Purchasing Agents Association and has been a speaker at the Purchasing Workshop at the Illinois Institute of Technology.

REDUCE BEARING SPACE— INCREASE BEARING LIFE

on heavily-loaded
applications



ORANGE
"STAGGERED"
ROLLER BEARINGS



Exclusive Staggered Roller Design uses many short rollers instead of fewer long rollers. With more rollers supporting the load, higher capacity is obtained, smaller size bearings can be used. You save space, weight and cost—gain long, trouble-free operation.



End views of Orange "Staggered" Roller Bearing (left) and conventional bearing show many short rollers distribute the load over a multiplicity of contact points within the loaded zone.

Orange "Staggered" Roller Bearings with short rollers greatly reduce roller skewing. Edge loading is reduced to give better fatigue life. Closer centers, with half the chordal distance, provide smoother running. Full range of sizes interchangeable with other bearings in the 200 and 300 series.

Write for Engineering Manual M-59

**ORANGE ROLLER
BEARING CO., INC.**

554 Main St., Orange, N. J.

For More Facts Write No. 293 on Information Card—Page 32

BAKER Electric Fork Trucks

Capacities range
through 7,000 lbs.



Short turning radius, hydraulic wheel brakes, exceptional driver visibility and exclusive BAKER dual dynamic braking are features of BAKER's efficient FT series. Standard full capacity lifts up to 144". Higher lifts available. Call your BAKER Industrial Trucks Representative for information on "a complete line for every handling need."

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COMPANY**



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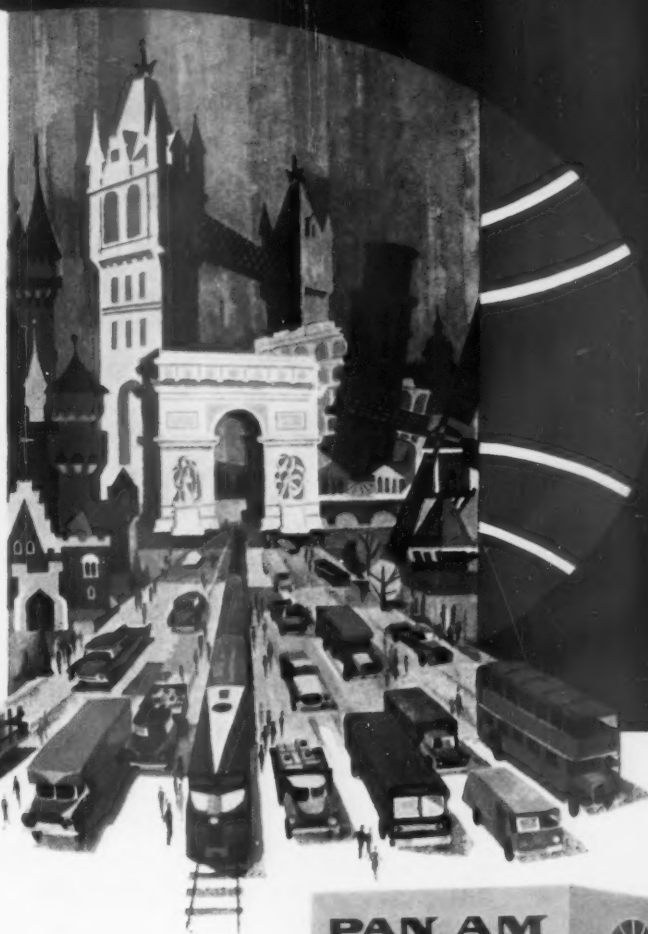
B6-61

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For More Facts About Ad
on Facing Page Write in No. 292→

*Doorway to all Europe
for your product...*

**PAN AM
WORLD-WIDE
MARKETING
SERVICE**



Now, in one step, the most complete overseas marketing service ever developed helps you do business with Europe's 343,000,000 consumers.



WORLD-WIDE INFORMATION

Current, valuable, authoritative information on 114 world trade centers in 80 foreign lands!

- Pan Am gets marketing facts—plus special needed information.
- Pan Am can help find markets for your product, also distributors, buyers, bankers overseas.
- Pan Am advises all the way on containers, insurance, rates, routes, collections.
- Pan Am monthly magazine lets you in on "inside" information, overseas opportunities!

WORLD-WIDE TRANSPORTATION

More flights direct to more major markets by the world's largest, fastest overseas air cargo fleet!

- Fastest delivery overseas, from 15 international gateways in U. S. plus faster, new ground procedures.
- One source for documentation, plus world's largest international truck-air system, cuts red tape.
- More space, speed! More all-cargo planes, and over-ocean Jets.
- Rates lower than ever! In more and more cases distribution by Pan Am costs less than by surface.

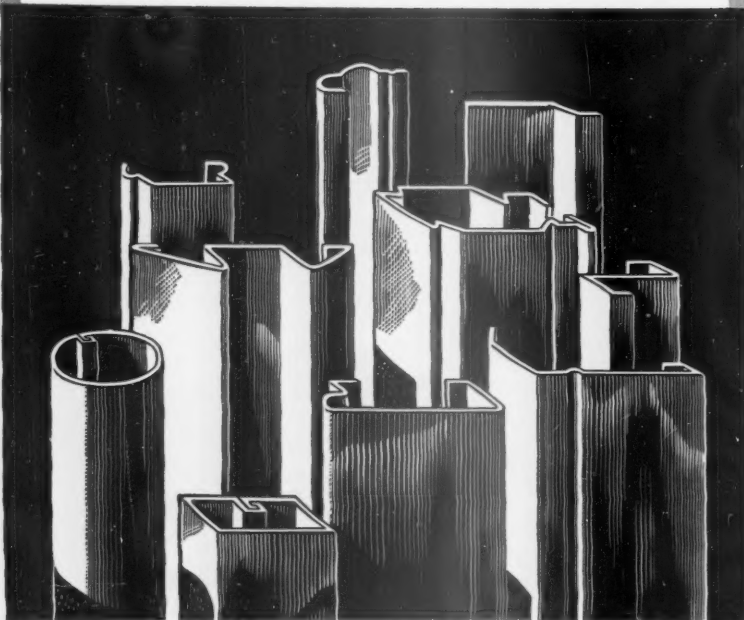
WORLD-WIDE REPRESENTATION

More American and English-speaking personnel to represent you and your product overseas!

- You get 114 world-wide offices—at no extra cost! Your product is handled the way you want.
- American viewpoint on the spot from American-trained personnel with local market know-how.
- World-wide contact service! Pan Am's integrated sales/service organization takes the hitches out of world marketing.
- World-wide follow-through makes world's surest delivery!

PAN AM PUTS YOU IN BUSINESS ABROAD—WITH ONE PHONE CALL!

SALES APPEAL



If you require ferrous, non-ferrous, clad or embossed shapes, with uniform high-quality appearance, ready for your production lines, investigate Roll Formed's shapes. By combining forming, punching, notching and cutting to exact length in one high-speed operation, Roll Formed gives you the engineered shapes you want at lower cost. For detailed information of the shapes, designs and metals available ASK FOR ROLL FORMED CATALOG 760.



MAIN OFFICE AND PLANT
3754 OAKWOOD AVE., YOUNGSTOWN, OHIO

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One-Man Purchasing Dept. Plans for Growth

(Continued from page 83)

offered by the purchasing agents association in nearby Philadelphia.

"These courses are important to me," he explains. "They help me keep up with many different systems and procedures." A recent discussion of data processing, for instance, gave Kershner a good idea how it can be applied to purchasing. "We can't use it yet, of course," he adds, "but a good purchasing agent must know what the technique can do for him."

Getting to know the people in the plant. Kershner feels this is as important as education. "As I'm a one-man department," he says, "there's is no question of authority. Everyone recognizes that this office does the purchasing. But I have to know what the plant's managers and engineers expect of me. I have lived with purchasing for quite a while—in some ways differently than other P.A.'s for my father was a purchasing director. But even though one job is superficially like another, each company requires something different from its purchasing agent."

In recognizing that each company is in some way unique, Kershner is making sure that his department will fit the needs of MSI. The fact that he reports directly to the general manager helps him achieve this goal. He is further aided by working closely with the production engineering manager on material matters.

Setting up the purchasing system. "Organization takes most of my time," Kershner says. "Right now I place only from 40 to 50 orders a week, but as production goes up this quantity is going to increase pretty fast. We think in terms of growth. We want to set up procedures that will be able to handle larger volumes without continually having to be overhauled."


Both Kershner and MSI's production people know that data processing, for example, can do a lot for purchasing and inven-

(Please turn to page 196)

PURCHASING

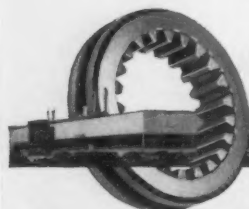
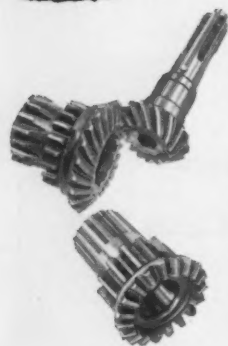
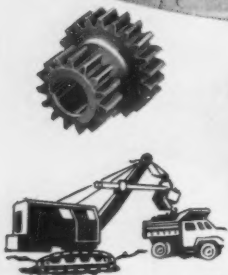
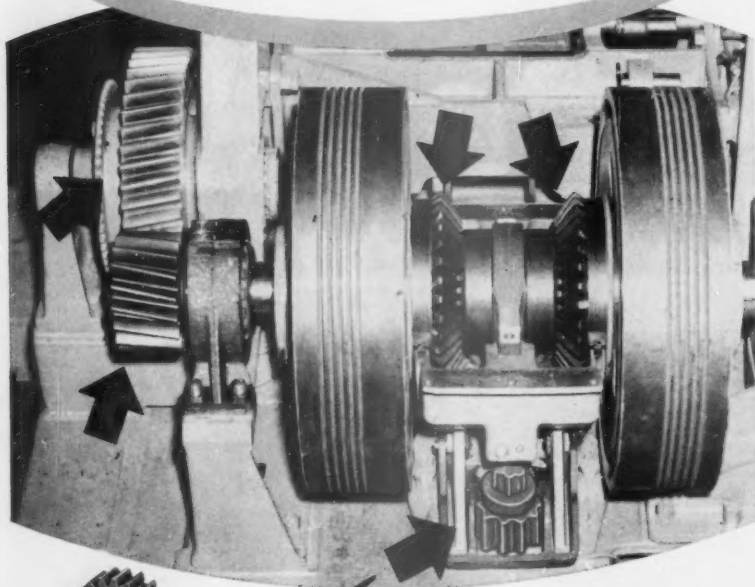
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come from
Continental**



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Do You have requirements for "Special Gears?"



✓ CHECK with FAIRFIELD!

"Fairfield has furnished us with bevel and spur gears for many years and we are highly satisfied with their product," states one of America's best known makers of shovels, cranes, and draglines in referring to the above picture. Each gear (see arrows) is precision produced to match this builder's specifications for *plus value* quality.

Making gears to meet exacting specifications is our business. The special or unusual requirements you have for design, size, finish, tolerances, materials, and heat treatment are often "standard" at FAIRFIELD. Here, every facility needed is available for production of fine gears **EFFICIENTLY, ECONOMICALLY. LARGE or SMALL, your inquiry will receive prompt attention. CALL or WRITE.**

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TRACTORS • HEAVY DUTY TRUCKS • AGRICULTURAL MACHINERY • POWER SHOVELS AND CRANES
MINING MACHINES • ROAD GRADERS • BUSES • STREET SWEEPERS • INDUSTRIAL LIFT TRUCKS
For More Facts Write No. 296 on Information Card—Page 32

One-Man Purchasing Dept. Plans for Growth

(Continued from page 194)

tory control, and they want to use it as soon as feasible. Kershner wants to be sure, however, that when he gets to this point, he won't be tied down with complicated manual systems that are hard to change or require difficult personnel moves.

For this reason, MSI keeps its material activities as simple as possible. "So far we have only a small inventory," says Kershner, "but it is already on travelling requisitions. I'm working with production on setting up inventories—trying to determine order points and stock levels. It is difficult, though, because we have little usage experience. But here the travelling requisition is especially useful. With all the figures in one place a pattern will soon show up. It will then be a simple matter to adjust the inventory points."

Cards for Infrequent Buys

Similarly, Kershner plans to set up buying cards for materials that are purchased frequently but cannot be carried in stock. Both buying cards and travelling requisitions can easily be converted to punched cards or tape whenever purchasing or inventory control are converted to data processing.

MSI's purchase order form is also as simple as possible. It consists of only the five most essential parts—original, acknowledgment, accounting, receiving, and file copies. But Kershner is seriously considering eliminating the acknowledgment copy.

"It is pretty useless," he asserts. "The percentage of returns is slight and many vendors send us their own forms instead. Besides, unless you are willing to spend a lot of effort to make vendors accept each order, the form doesn't solve the legal problem of whether you have a contract or whose terms apply." Kershner is thinking of replacing the acknowledgment copy with a simple self-addressed postcard which the vendor would return just as confirmation of the proposed delivery date.

(Please turn to page 200)

For More Facts About Ad
on Facing Page Write in No. 297→



Now! Skil Roto-Hammers drill 3½" holes in reinforced concrete

using new percussion carbide tipped Skil Core Bits!

There are plenty of good reasons why the Skil Roto-Hammer is sure to be the world's largest selling hammer again in 1961! But one of the foremost is Skil's new core bits.

These hollow core, percussion type carbide bits increase the range of the Model 726 Roto-Hammer from 1½" up to 1½" and the Model 736 from 2" up to a full 3½"!

What's more, they drill right through stubborn steel reinforcing rods—an im-

possibility with solid carbide bits or star drills.

This means that the hammer that already drills masonry holes at the *lowest cost per hole* and with *lowest hammer maintenance*, has tremendous added versatility.

Ask your Skil distributor for a demonstration soon. Look under "Tools-Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 125C, 5033 Elston Avenue, Chicago 30, Illinois.

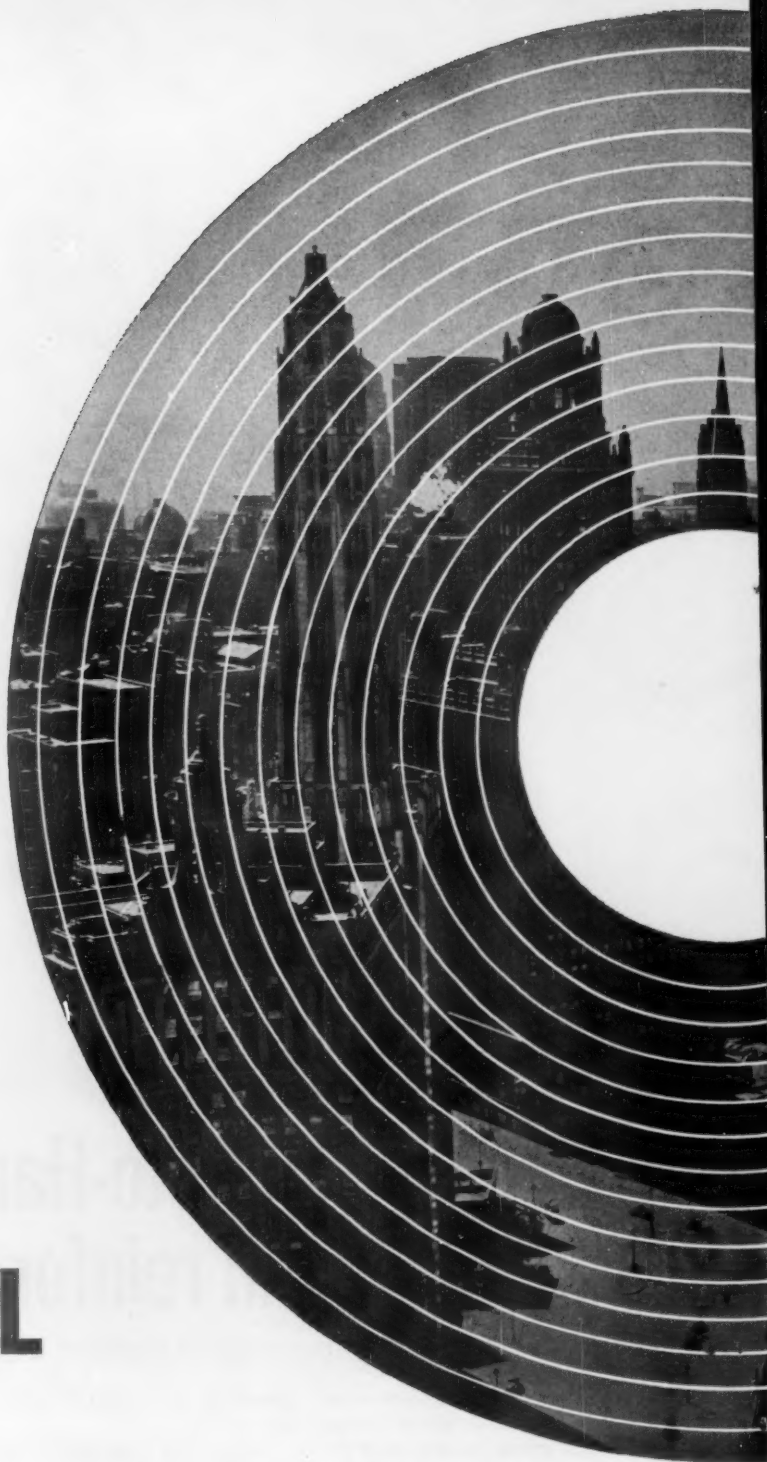


Skil Roto-Hammers combine power rotation with powerful hammering to drill holes in masonry (¼" to 3½") 5 to 6 times faster than ordinary electric hammers! Lowest maintenance—no springs to break.

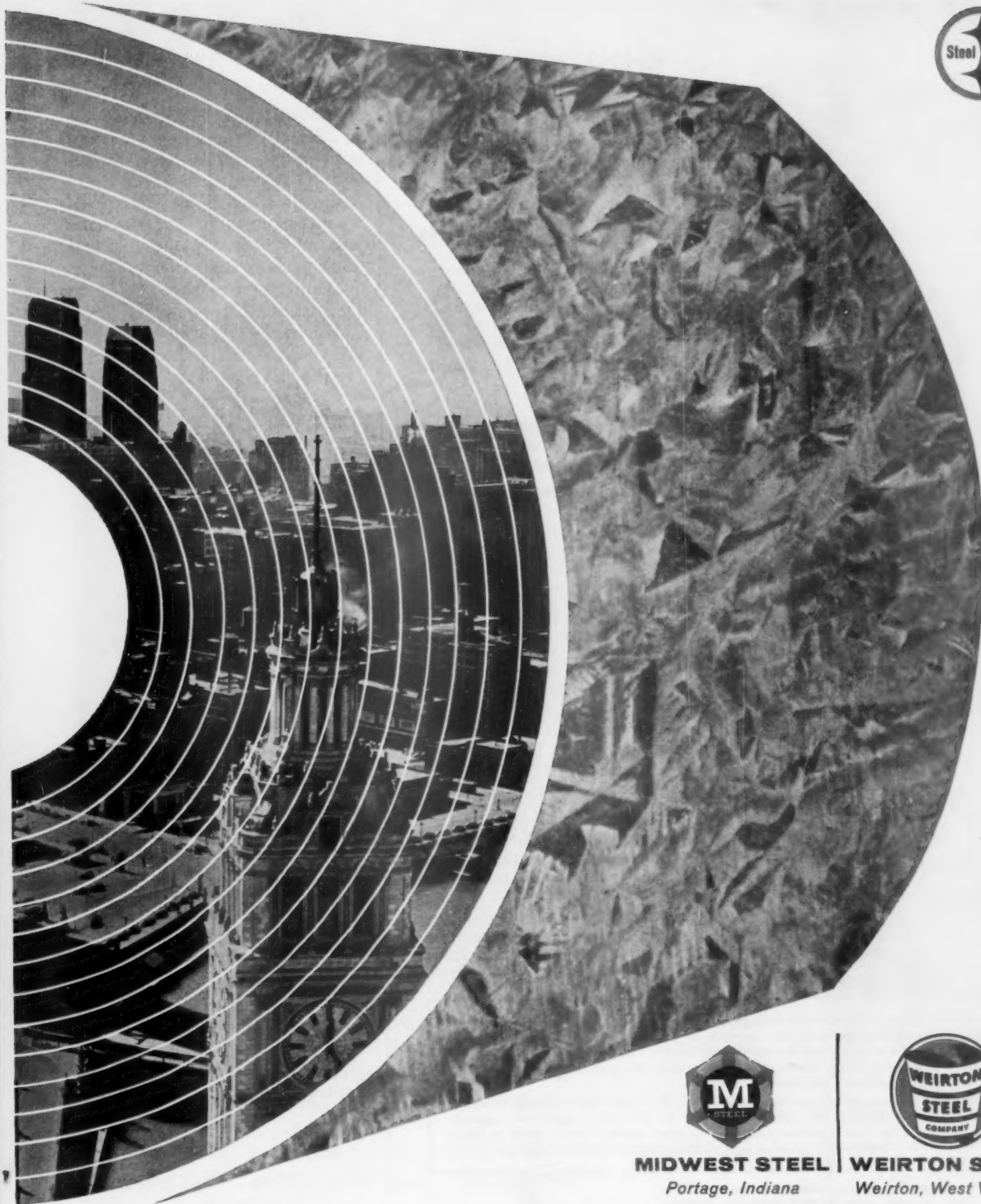


... and SKILSAW POWER TOOLS

**NOW
MORE
GALVANIZED
STEEL
FOR
MID-AMERICA
FROM
NEW
MIDWEST
STEEL**



For one of the greatest steel-consuming areas of the country, galvanized steel will now be in greater supply. The source is close, the service is fast, and the quality is second to none. Because



MIDWEST STEEL

Portage, Indiana



WEIRTON STEEL

Weirton, West Virginia

divisions of

NATIONAL STEEL CORPORATION

Weirkote, the modern continuous-process galvanized steel, is now being produced at our new Midwest Steel facilities in the Chicago area, as well as at our Weirton Steel division in the Pittsburgh area.

MARCH 13, 1961

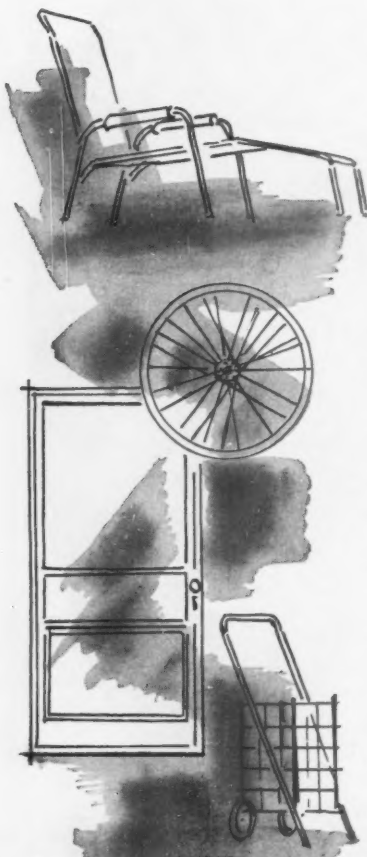
For More Facts Write No. 298 on Information Card—Page 32

199



double corrosion protection

on Aluminum, Magnesium and Zinc-plated parts



with
IRIDITE[®]
CHROMATE CONVERSION COATINGS
and
IRILAC[®]
CLEAR PROTECTIVE COATINGS

Here's a fast, easy way to practically double corrosion protection on your products. Simply follow the Iridite process with an application of Irilac. You give parts extra protection from corrosive conditions, added abrasion resistance, longer shelf or storage life, protection from finger marking and increased beauty for a more attractive appearance and faster sales.

ON ALUMINUM—An Iridite-Irilac finish provides long life under many service conditions. Iridite colors range from natural aluminum to golden yellow. Additional dyes give other color ranges.

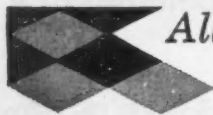
ON MAGNESIUM—Irilac over Iridite 15 increases protection, resists damage from handling or abrasion. Color range—light to dark brown.

ON ZINC—Iridite plus Irilac gives longer product life, brighter appearance. Color range—clear Iridite to olive drab, plus colored dyes.

IRIDITE—chromate conversion coatings for non-ferrous metals applied by dip, brush or spray, at room temperatures manually or with automatic equipment. Provides corrosion resistance, a base for paint or decorative appearance. Forms a thin film integral with the metal. Cannot chip, flake or peel. No special equipment, exhaust systems or specially trained personnel required.

IRILAC—Clear protective coatings for all metals. Safe and easy to handle as water. Apply by dip or brush. No exhaust or special fire prevention equipment required. Adds protection and abrasion resistance to base metals, plated parts or parts treated with electrolytic or chemical post treatments without chemical change.

For complete technical information on **IRIDITE** or **IRILAC** coatings, write for **FREE TECHNICAL MANUAL**. Or, see your Allied Engineer. He's listed under "Plating Supplies" in the yellow pages.



Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Buhler Co.

European Agents: Stora Grosberg, Storgatan 10, Stockholm, Sweden
Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE[®]
Chromates

IRILAC[®]
Coatings

ISOBRITE[®]
Brighteners

ARP[®]
Supplies

WAGNER[®]
Equipment

For More Facts Write No. 299 on Information Card—Page 32

One-Man Purchasing Dept. Plans for Growth

(Continued from page 196)

Finding out what salesmen have to offer. "We are a new company with new products" says Kershner. "This means that in many areas we are still trying to learn what we need to buy. For that reason, I'm anxious to find out what vendors have to offer."

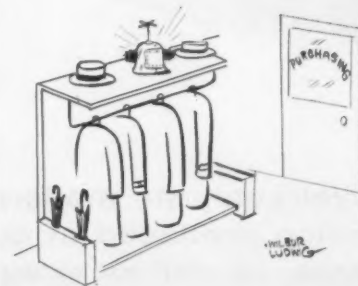
Monitor's reception room arrangement is particularly well-suited for a small company and is a boon to its purchasing agent. Instead of a receptionist, the lobby is supplied with an inside phone. A sign asks the visitor to call the person he wishes to visit (see cut). He is then invited to come in if necessary.

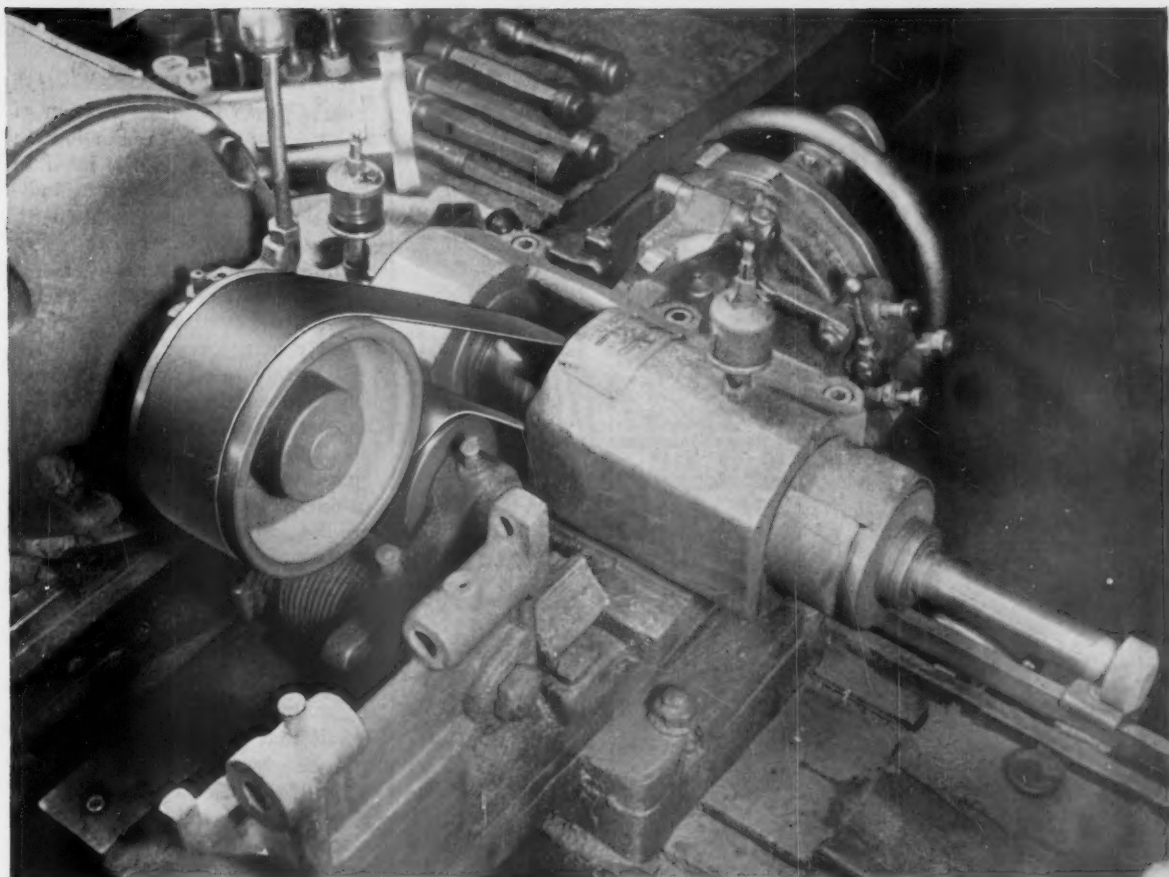
As Kershner talks to salesmen by phone first, he is able to cut short a lot of sales calls that couldn't possibly be productive. The system benefits salesmen too, for with MSI just beginning to get known in the field, many are making exploratory calls.

Understanding the equipment his company builds. "This is pretty difficult," Kershner admits. "I'm not an electronic engineer and our stuff is pretty advanced control equipment. But I do try to find out what goes into these systems and what our engineers are striving for. I feel that this is essential to doing a good buying job."

Production at MSI is mainly an assembly job and Kershner therefore buys all the electronic hardware and components that are needed. He spends a lot of time with engineers to make sure he understands the requirements accurately.

► END





Gates Speed-Flex Belt is made to outwear any other high speed flat belt

Speed-Flex Belts keep your equipment running smoothly and efficiently—with minimum belt replacement and down-time. The power load is carried by a single, highly flexible layer of tensile cords. A supporting layer of cross cords forms a high-traction tread that keeps the belt from slipping, assuring smooth, uniform production output.

Ordinary woven and braided belts have tightly interlaced cords which can literally saw themselves apart at high speeds.

In a Speed-Flex Belt, every cord is separated from every other by a layer of cushioning rubber. There cannot possibly be any sawing action of cord against cord to cause belt failure.

This unique Gates construction increases belt life . . . cuts belt costs . . . reduces machine down-time.

Your local Gates Distributor can quickly supply you with money-saving

Gates Speed-Flex Belts in the sizes that you need—call him today.

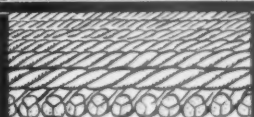
The Gates Rubber Company, Denver, Colorado

BP 16

Gates Speed-Flex Belts



In ordinary woven and braided belts, a sawing action between cords can reduce belt life.



Gates Speed-Flex construction has no wear of cord against cord—belts last up to 5 times longer.



Building the future on 50 years of progress

**"No matter
which way
the wind blows
'BUFFALO'
is your best
pump buy!"**



Take a lesson from the windmill pump. It's fine when the wind's blowing. However, no wind means no water.

Some plants are still getting along on yesterday's industrial pumps, too. When they're working, there's no problem. But when they're out for repairs or you can't get parts, plant processes and functions must stop, too. That's expensive. Far more expensive than the slight extra first-cost of reliable pumps.

Users of 'Buffalo' Pumps enjoy the latest in design features for long life on the specified liquid handling job. They enjoy inherently high efficiencies for power savings. They enjoy accessible construction and parts interchangeability for the fastest and most economical maintenance. They enjoy the peace of mind of knowing their pumps won't be causing lengthy plant downtime.

You will enjoy this same reliability and long-run economy, too, when you specify 'Buffalo' for your important liquid handling jobs.



**BUFFALO PUMPS DIVISION
BUFFALO FORGE COMPANY**

Buffalo, New York
Canada Pumps Ltd., Kitchener, Ont.



Buffalo air handling equipment to move, heat, cool, dehumidify and clean air and other gases.



Buffalo Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.



Buffalo Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.



Squarer machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

For More Facts Write No. 301 on Information Card—Page 32

Penalty Clauses:

(Continued from page 92)

'comes down from its position of sovereignty and enters the domain of commerce, it submits itself to the same laws that govern individuals there.' That statement, however, is no longer true either technically or substantively; if it were, there would be no need for a separate textbook on government contract law."

"... the federal government has emerged as the principal buyer, as well as a principal seller, of goods and services; as the principal owner and occupier of land; as one of the principal sources of credit; and all in all, as the most important single business factor in the entire national economy. And this transition in function of the United States Government has had a corresponding impact on the law applicable to dealings with the government, with the result that there has now arisen and clearly exists a special body of legal principles with a distinct personality of its own which, in many circles at least, is called 'government contract law'."

Governmental contracts (whether federal, state, or local) are colored by public interest and, in the great majority of decisions, it is found that actual loss or damage is impossible to determine with accuracy. This results in liquidated damage clauses being upheld unless, *beyond a reasonable doubt*, the sum fixed is excessive and a penalty.

Good Buy For the Gov't.

Many cases may be cited in which public interest, particularly in times of national emergency, have caused the courts to uphold damage clauses which seem far out of proportion to the loss. In a leading case involving a war-time Army contract, the supplier accepted an order for 25,000 one-piece working suits at \$2.12 each. The contractor defaulted on 5991 of these suits, and the government bought the lot from other sources for less than \$25 additional cost.

Under the liquidated damage clauses the government withheld \$6729.14 from the amount payable to the supplier. It was vigorously

maintained by the vendor that this sum was so clearly excessive and out of relation to actual loss that the provision was a "penalty." In upholding the liquidated damages, the court reasoned that in time of national emergency the damage sustained by the public in the failure to deliver any essential supply is not susceptible to exact measurement and that, therefore, the provision was reasonable.

Different Kind of Damage

This emphasis on public interest is not limited to national defense situations. A similar ruling was made in a case involving large liquidated damages for failure to complete on schedule a road in Sequoia National Park. Here the damage to the public, held to be uncertain, was delay in an educational or recreational facility.

Where a governmental agency terminates a contract or cancels an order because of delay in performance, it has been held that liquidated damage clauses cease to operate because the supplier is barred from attempting further performance. To overcome this line of decisions, some standard contract forms now used by the federal government contain a clause which permits recovery of liquidated damages as well as actual damages when the contract has been terminated.

Purchasing officials of state and local governments and quasi-public institutions will undoubtedly find it profitable to study the Armed Services Procurement Regulations (ASPR) as a good indication of provisions giving maximum protection to the government within the framework of existing law. In these regulations it should be noted that, to mitigate the rigors of liquidated damage clauses, it is generally provided that such damages will not be assessed when the delay arises out of causes beyond the control and without the fault of the contractor.

It is generally held that liquidated damages must be limited to that part of the contract which was not performed as agreed and cannot be collected on the entire contract because of a partial default.

► END

ONE WAY TO KEEP WARM--



-- BUT HERE'S A BETTER WAY !



BUFFALO HEATING AND VENTILATING UNITS might not be practical 'way out in the tribal wilderness, but for your plant, they're the best cold-weather investment you could make.

For "spot" heating — taking the chill off those plant areas where ordinary heating systems can't reach — there is no more economical or effective method than 'Buffalo' Breezo-Fin Unit Heaters. Compact and efficient, their seamless Aero-Fin coils and quiet-running 'Buffalo' Breezo Fans distribute the heat where you need it, plus ventilating these areas in all seasons.

For central heating — 'Buffalo' Heating and Ventilating Units can heat a whole plant economically — while supplying fresh, filtered outside air at desired temperature.

For makeup air — 'Buffalo' Makeup Air Units supply your plant with a cubic foot of fresh, filtered, tempered air for every cubic foot of dust, fumes and gases exhausted. Calculate this in terms of employee health and morale!



AIR HANDLING DIVISION
BUFFALO FORGE COMPANY

Buffalo, New York
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.



Buffalo air handling equipment to move, heat, cool, dehumidify and clean air and other gases.



Buffalo Machine Tools to drill, punch, shear, bend, slit, notch and cope for production or plant maintenance.



Buffalo Centrifugal Pumps to handle most liquids and slurries under a variety of conditions.



Squier machinery to process sugar cane, coffee and rice. Special processing machinery for chemicals.

For More Facts Write No. 302 on Information Card—Page 32

Copier Saves \$2000

(Continued from page 93)

chasing clerks types only the variable information on the "new construction" purchase order—such as the date, vendor's name and address, purchase order number, particular department, and the delivery date.

"After this heading information is typed," says Assistant Purchasing Agent J. V. Janssen, "we merely take the 'quantity list' containing the selected vendor's bid, expose the information about the materials to be purchased, and use the machine to copy it on a 'new construction' purchase order matrix sheet. From this master made on a Verifax offset adapter, we then reproduce our thirty copies on an offset duplicating machine."

The estimated saving of \$2000 a year, is mainly in labor costs. The jobs now take one-fifth the time.

The versatility of the copier is also dramatized in processing regular requisitions. Here, the results of the new copying system

have been even more impressive.

Pre-printed requisitions listing every standard item are used by the ships. These requisitions are completed on board ship by responsible personnel, approved by a shore department head, and forwarded to purchasing.

All bidding by suppliers is done on bid forms listing the same items as the requisitions, but with more detailed specifications. Successful bidders are selected for bi-weekly, bi-monthly, six-month, or yearly bids, before the actual requisitions are received from the ships.

Previously when the requisition arrived, they were priced by a clerk and then converted to purchase orders by manually typing carbonized snapout purchase order sets. Then the purchase orders had to be carefully checked.

With the new system, a copier is used to reproduce a part of the purchase order from the "quantity lists." The simplest section to convert was the subsistence stores for cargo ships—since these could be broken down into predetermined purchase orders with-

out too many items remaining open each time they are used.

The commissary department still prepares the requisitions and purchasing prices them as before. However, instead of typing, purchasing uses the copier to turn out copies of the purchase orders.

Originally, only white paper was used since that's all there was available, but now colored paper is used which matches the five colors of the copies from the carbonized snapout sets.

Result: no checking of the information is necessary and it takes less than an hour to copy these orders—compared to five or six hours to type them. No typing is done at all, as all entries are written by pencil. Orders are run off by a file clerk, directly through the copier.

Presently, the office copying system covers only about 15% to 20% of the purchase orders issued by American Export. As more uses of the copier are developed, additional savings will probably be made. Plans are now underway to use the copier for varying purchase orders. ► END

DRAMATIC PROOF



Turn-Towl's aluminum cabinet wears while others just wear out

Turn-Towl put its own cabinets to the test in the slaughter room of a midwestern meat packing plant. First, the familiar white enamel towel cabinet (like those supplied by most paper towel services) was used a year. Then Turn-Towl's polished aluminum cabinet replaced it — looked just as new 18 months later when it was taken down and photographed.

Other equally dramatic field tests have been made in schools, chemical plants, hospitals. Names are available on request.

For the name of your nearest distributor — who will demonstrate Mosinee Turn-Towl service and arrange for a free trial, if you wish — write Dept 1100.



Plastic heat deflector



Custom molded by CMPC

APPLICATION: 26-inch compression molded heat deflector for General Electric Mark 27 built-in range. Diverts oven heat from control panel—helps to insure longer, trouble-free life.

ADVANTAGES: The CMPC-molded phenolic part has a top continuous use temperature rating of 400 degrees F—comparable to many metals. In addition, because its satin-smooth finish is built-in, it requires no additional expensive machining.

Specify CMPC . . . custom plastic molders for over 40 years.

CMPC CHICAGO MOLDED PRODUCTS CORPORATION

1020-1 N. KOLMAR AVE. CHICAGO 51, ILLINOIS

For More Facts Write No. 303 on Information Card—Page 32



FUNCTIONAL TESTING

ASSURES PREDICTABLE PERFORMANCE OF BARDEN PRECISION BALL BEARINGS

At Barden, each of the steps involved in the design, engineering, manufacture, assembly and testing of precision bearings has just one goal — to insure that, small quantity or large, every *Barden Precision* ball bearing will meet your performance requirements.

Functional testing — all important in accurately predicting bearing performance — is used throughout Barden's rigidly controlled production processes, from parts manufacture to final bearing inspection. Typical of the continuing efforts to develop advanced functional testing techniques is the Barden Torkintegrator.

This instrument, which provides extremely accurate response to bearing torque variations, is one of many

Barden contributions to the advancement of precision bearing art. In fact, many of these Barden developments have now become industry standards.

Barden functional testing — together with Barden methods in manufacturing, quality control, bearing assembly, final inspection, lubrication and sealed packaging — is your assurance that with *Barden Precision* bearings you get consistent quality from the beginning to the end of each production run.

Barden is a major supplier of standard bearings in sizes from .0469" bore to over 3" O.D., all manufactured to *Barden Precision* standards of dimensional accuracy, uniformity and reliability.

for reliability...specify

BARDEN



PRECISION BALL BEARINGS

THE BARDEN CORPORATION, 239 Park Avenue, Danbury, Connecticut
Western office: 3850 Wilshire Boulevard, Los Angeles 5, California

JOLIET

has **EXPANDED AGAIN**
to serve you



Less than four years ago, JOLIET completed an expansion program increasing its production potential by 40%. Now, additional production space has just been built. And new high speed production equipment is being added now to provide ample capacity to match industry's growing demand for JOLIET washers of all types — standards and specials, any size, any metal, any quantity. Be assured: JOLIET will continue to be your No. 1 Source for top quality washers — promptly delivered — now and tomorrow.



JOLIET WROUGHT WASHER CO.

210 Connell Avenue
Joliet, Illinois



Write for new 16-page catalog
covering our extensive line of
standard and special washers.

An Easy Way To Upgrade Buyers

(Continued from page 73)

buyers' home phone numbers are distributed to key operating personnel). Without it, he would have to call Wurster who, in turn, would probably call the appropriate buyer.

Oral Requisition. Purchasing also tries to make the requisitioner's job easier in other ways. Requisitioners are instructed in detail how to fill out requisitions so purchasing can take care of their needs efficiently with a minimum of confusion. Purchasing provides them with the following special instructions:

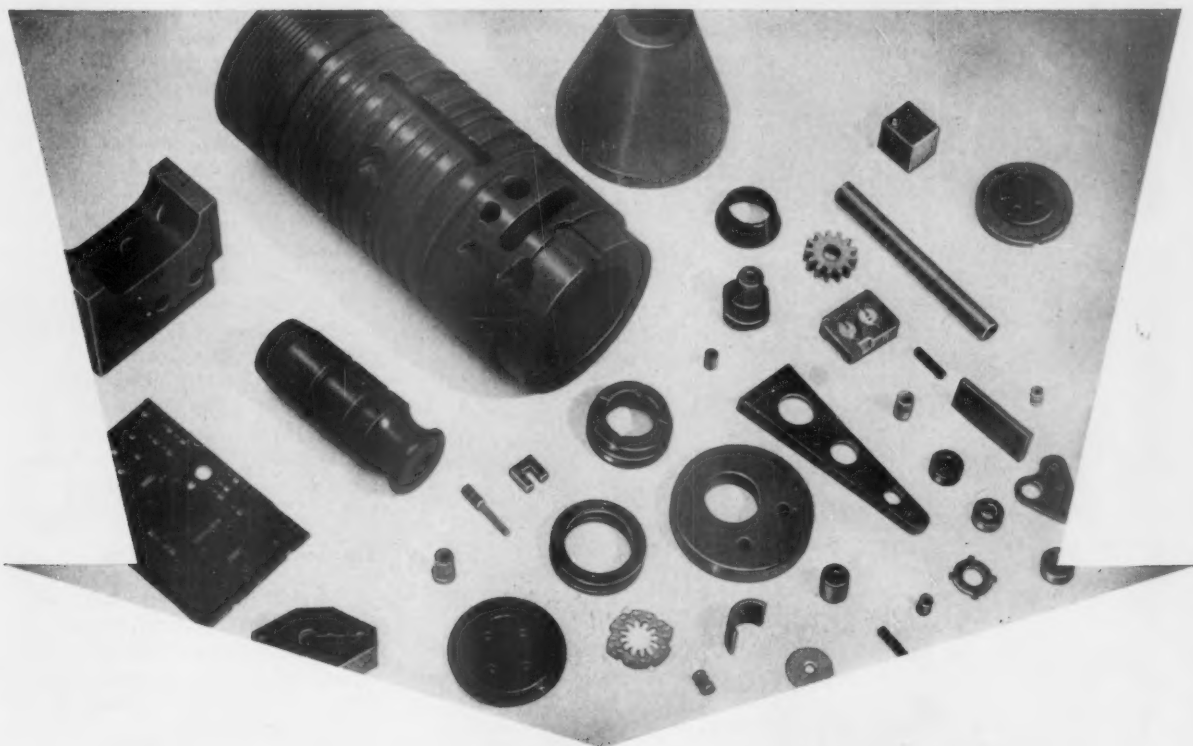
1. Describe requirement as completely as possible and include all pertinent information such as service conditions, materials of construction, capacities, etc. If applicable, show previous order number and date, original manufacturer, serial number, model or type, or other nameplate data.
2. After "Ship To" indicate receiving point by checking proper box. Other destinations should be written out in space following.
3. After "Date Required" mark date material is *NEEDED*. Do not write "Rush" or "Immediate."
4. After "Deliver to" indicate department where material is to be delivered within the plants or offices.
5. Sign and have requisition properly approved.

Say It, Then Write It

Of course sometimes requisitioners don't have time to fill out a requisition properly. Emergencies arise and they need material immediately. So purchasing accepts oral requisitions. However, to prevent a request from being made without any substantiating record, the buyer fills out a form from the telephoned requisition. This form then becomes his interim authority to issue the order until he receives a copy of the confirming requisition.

Shortcuts like these permit buyers to concentrate practically all
(Please turn to page 208)

What's different about specifying and buying fabricated parts like these from Richardson



A "GUNG HO"* ATTITUDE

There *are* beneficial differences when you buy from the Richardson salesman. He represents a company geared and manned by experienced personnel *"working harmoniously" to provide job shop attention and service to your specific needs. The differences continue with emphasis on clear customer communications. He is trained to tell you effectively about Richardson's two fabricating plants, and discuss intelligently the many different manufactured grades of laminated Insurok® rods, tubes, sheets and fabricated parts. He has case history samples to share with you in discussing applications that can cut your cost and improve equipment performance.

In turn, the Richardson man clearly presents your needs immediately to our plants, assuring accurate information

as to what you want in fabricated part performance, delivery and competitive prices.

In addition, you get better fabricated parts from Richardson because of our undivided responsibility from the original manufactured material through the finished piece. The job-shop-service policy is backed up with substantial production facilities and a careful quality control system.

Your order will be produced by skilled men working together in harmony and getting your job done just right with a minimum of cost. The Marines call it *Gung Ho*. It comes when a company is specialized, experienced and versatile. Call the Richardson salesman today and put this attitude to work for you.

Write Dept. 12 for free technical data

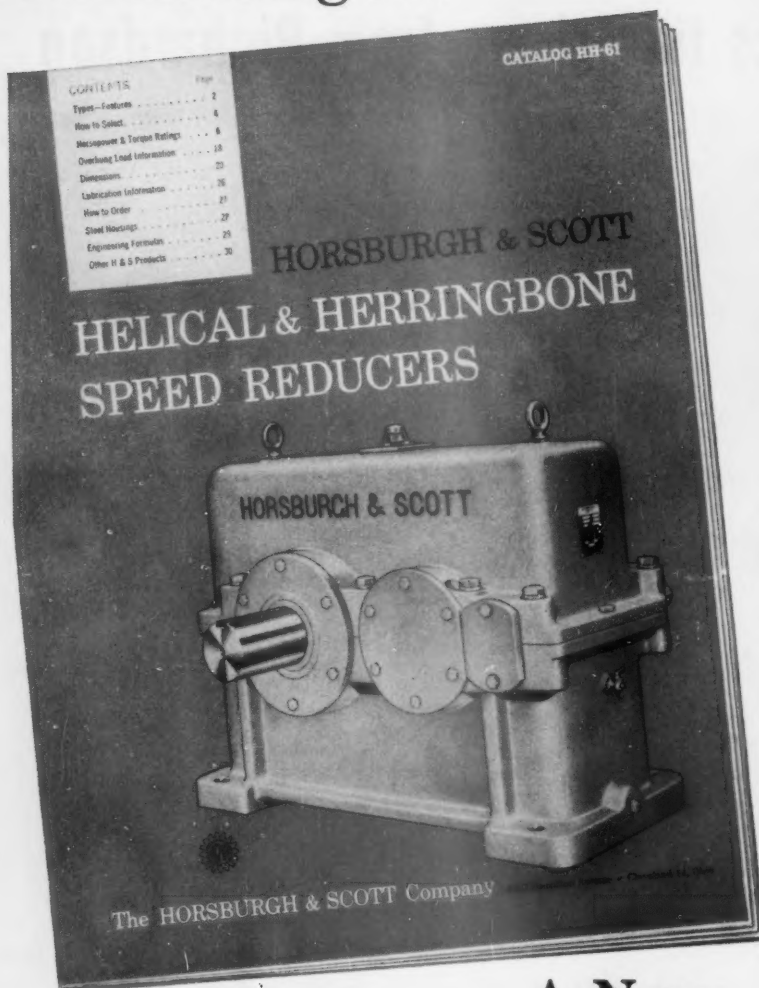
THE RICHARDSON COMPANY

Sales Offices In Principal Cities

2791 LAKE STREET, MELROSE PARK, ILLINOIS

Laminated
Fabricated
and
Molded
Plastics

Introducing . . .



... A New HORSBURGH & SCOTT SPEED REDUCER CATALOG

To Simplify
Selection
of Speed
Reducers
for Industry

New catalog features include:

New Sizes • Improved Ratings • More Ratios
• Latest AGMA Thermal Ratings • Simplified
Selection • Easy-to-use Overhung Load Rat-
ings • Steel Housings.

Write for **Catalog HH-61**—on your company
letterhead, please.

Let our engineering staff give you
prompt assistance with your enclosed
gearing requirements.



The HORSBURGH & SCOTT Co.

5112 Hamilton Avenue • Cleveland 14, Ohio
For More Facts Write No. 307 on Information Card—Page 32

An Easy Way To Upgrade Buyers

(Continued from page 206)

their efforts on the creative phases of their jobs. Each buyer has a girl to handle his detail work and Wyandotte's well defined procedures permit the girls to carry out their jobs with a minimum of supervision from the buyers. This gives the buyers time for what is probably Wurster's favorite purchasing activity: value analysis.

Buyers report value analysis savings on the specially designed form illustrated elsewhere in this article. They take special care to make their savings estimates accurate. If a project backfires and savings don't materialize, they put through a debit cancelling out their previous savings report. No opportunity for saving is overlooked as these examples illustrate:

Big Savings by Blending

A buyer arranged to have two chemicals blended and shipped as one item instead of buying each separately and having them blended at the Wyandotte plant. Savings: \$4600 annually.

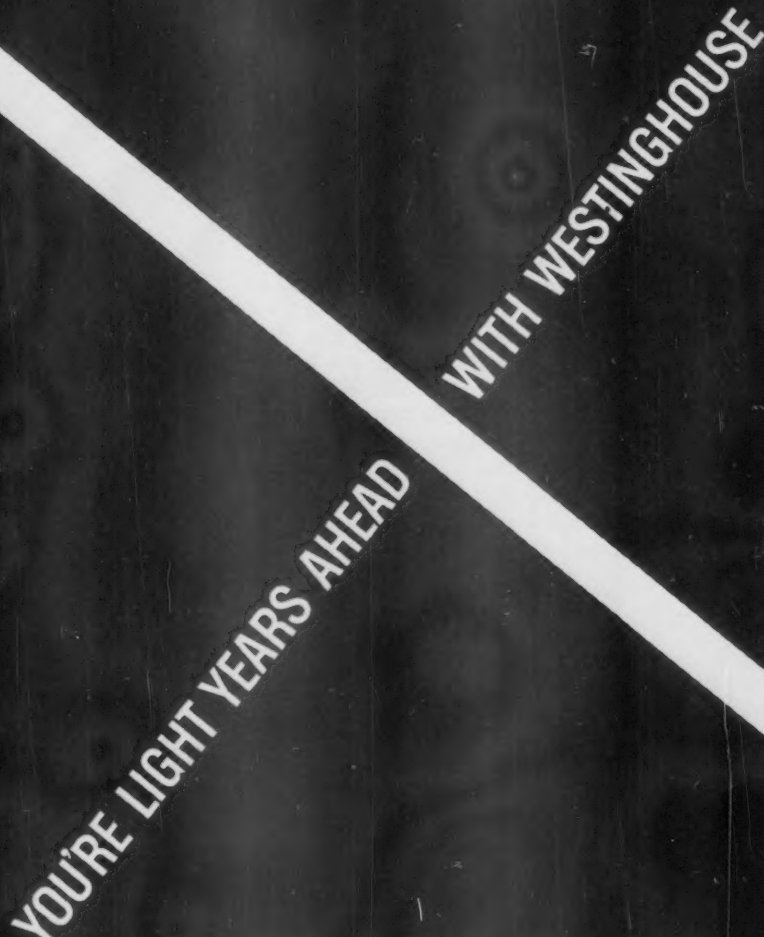
A buyer analyzed his quotations for ash grinder parts for boilers and decided to investigate the cost of making the parts in Wyandotte's own foundry. Savings: \$1945 (non-recurring).

A buyer received a requisition for certain spare parts for a pump which would have cost \$2072. He investigated and discovered he could get a new pump, using the base plate from the old pump, at a saving of \$1172. In addition, the new pump was cheaper to install and the good parts on the old pump could be salvaged and kept as spares.

These are representative examples of the hundreds of savings Wyandotte buyers make each year. They illustrate what buyers can do when they have time enough to buy. ► END

Coming — May 8, 1961
Purchasing Magazine's
Annual
Value Analysis Issue

For More Facts About Ad
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YOU'RE LIGHT YEARS AHEAD
WITH WESTINGHOUSE

NEW WESTINGHOUSE HIGH-EFFICIENCY LAMPS GIVE YOU $\frac{1}{3}$ MORE LIGHT AT NO EXTRA COST AND YOU DON'T HAVE TO CHANGE FIXTURES!

Now you can increase lighting levels without changing a single fixture . . . without increasing power costs . . . and without paying premium lamp prices. New Westinghouse "High Efficiency" fluorescent lamps give you a full third more light than daylight lamps . . . and 15% more light than cool white lamps . . . without consuming an extra watt of power!

"H.E." lamps are so new even the color tint is different—and only Westinghouse has it! A special blend of phosphor particles coating the inside of each lamp provides the higher lumen output . . . with a pleasant and restful green tint. Users everywhere feel this new green-white light gives a softer, more comfortable light . . . the most efficient working light yet. Try "H.E." lamps in an entire area. If you don't agree that they provide the most efficient light ever, we will gladly exchange them for any Westinghouse fluorescent, any color shade, of your choice!

With "H.E." and other Westinghouse lamps, the Westinghouse Lighting Cost Reduction Plan gives you one or more of these benefits:

1. **Reduced cost of lamp purchases!**
2. **Reduced lamp replacement labor costs!**
3. **Increased lighting level for the same or lower costs!**
4. **More efficient use of power!**

Order new Westinghouse "H.E." lamps today and get more information on the Lighting Cost Reduction Plan from your authorized Westinghouse Lamp Agent or your nearest Westinghouse Lamp Sales Office! *You can be sure...if it's Westinghouse.*

Westinghouse



Westinghouse Lamp Division, Westinghouse Electric Corporation, Bloomfield 2, N.J.

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For More Facts Write No. 309
on Information Card—Page 32

Specials: Must They Be Expensive?

(Continued from page 82)

screw with a necked-in area on the shank below the head to hold the screw itself captive in a sheet metal assembly.

The complete special

But there will always be cases where the special just cannot be made by changing a standard or standard blank. It has to be produced from scratch. Since additional engineering, tooling and processing are required, this complete special will always be the highest cost part. But even here, it may be possible to save on extra costs by making certain non-critical changes in the specifications. An inquiry that states the problem to be met will help the vendor make his recommendations.

Saves Time for Buyer & Seller

On inquiries, the use of the tabulated blueprint is often a time-saver for both purchaser and supplier. For example, one large metalworking company knows it will need a number of different diameters and lengths of the same configuration screw over an extended period. Rather than sending a number of individual inquiries for each immediate need, the P.A. sends a tabulated print asking quotes on estimated quantities of each. Price and delivery information, conveniently tabulated, then becomes a catalog of the specials he knows he will need. It's a useful device, and could be more widely used. ► END



"I don't mind his eating his lunch at the office . . . but . . ."

WHERE CAN H & H HELP YOU CUT COSTS?



1. With any volume-produced, small-diameter tubular metal part

We're specialists in small metal tubular parts and tubing. Sizes from .01 in. to 1/2 in., held to closest tolerances, and made of any commercial alloy for any application in any field. We can usually supply parts for less than it costs you to make them—probably for less than it would cost you to buy from other sources. We do the complete job; save you the expense and headaches of engineering, tooling, inspection, overhead, follow through on deliveries and scheduling. Full details in our Facilities Bulletin 2056. Write for it today.

2. With money-saving ideas for using tubing

Are you mass-producing a small metal part the expensive way? Deep drawing, for example? Or drilling, forming, turning on a screw machine? We have shown hundreds of customers where and how to cut costs, save time and solve problems with small tubular parts instead, at savings up to 75% or more. Note the typical H & H ideas below. Then send a blueprint or sketch of the part you are now producing, or designing. No obligation. Write today!



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Noble & Jackson Sts., Norristown, Pa.
Phone: BR 2-6453 • BR 9-2327

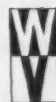
Specialists in the design, tooling and fabrication of small tubular metal parts.

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Millions of picnics in corrugated

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For More Facts Write No. 312
on Information Card—Page 32

212

Lumber Buying Plan Saves \$25,000

(Continued from page 77)

ously a lumber-requirement forecast.

Requirements for boards and timbers are fairly easy to determine from shipping schedules and are simply tabulated on the "Monthly Delivery Schedule" (see illustration). Copies are made for all interested parties including the lumber company. The copies to the supplier are substitutes for the previously used blanket order releases. A nominal truck-load quantity is 10,000 feet for timbers and 12,000 feet for boards. Items are grouped on the "schedule" to facilitate truck-load delivery. Any minor changes in the forecast are handled by change notice.

Drop Shipments Mean Savings

Further agreement with the supplier provides for drop shipments of mixed lumber to the two Westinghouse shipping locations. This alone saves several hundred dollars a year in internal handling costs.

In completing the forecast and new delivery programs, the purchasing department was able to convince the stores department that the need for keeping detailed activity records no longer existed. Over a dozen ledgers were eliminated and the man-hours required to maintain them saved. The stores department is no longer responsible for the lumber requirements of the steam division.

The whole program is, of course, based on a single source of supply. This is one case where the benefits indicate that all eggs should be in one basket. The supplier's efforts have been recognized and he has been rewarded for his ingenuity. Through value analysis, Westinghouse has a better supplier and the supplier has a better customer.

We have changed a lot of things in our lumber buying. We'll continue to investigate any other cost reduction policies. Meanwhile, we're proud of the fact that our value analysis approach at Westinghouse has produced savings of over \$25,000 in lumber dollars alone every year.

► END



STAINLESS pipe & fittings in stock...

Stainless steel piping for process installations, like the one pictured in Mogen David Wine Company's modern Chicago plant, can be readily supplied from our warehouse stock.

We maintain a large inventory of light-wall, standard, and extra-heavy stainless pipe in a variety of sizes and analyses—plus threaded and welding fittings, and valves.

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"Are the Slings You're Now Using as Pliable as this New HI-PLI?"

THIS ACCO WIRE ROPE SLING STRAIGHTENS ITSELF OUT WHEN RELEASED

- See how flexible it is
- It's practically kink-proof
- Wrap it around heavy or irregular shaped loads—and it hangs straight again as soon as you release it
- It lasts longer—can be used over and over again
- Handles easy for it has the pliability of hemp with the strength of steel

Yes, HI-PLI slings are amazingly pliable. This results from ACCO's arrangement of six ropes laid around one. HI-PLIS also have ACCO's patented Dualoc endings which double-lock the sling ends.

They look good, too, with a clean bright finish which comes from ACCO's own Galacco coating process.

Each and every HI-PLI sling is factory proof-tested at twice its load-carrying capacity to earn an ACCO tag and certificate of registration. That means they're safe.

Ask your distributor for HI-PLI slings
• Or write us at Wilkes-Barre, Pa., for our new **Catalog 10** which describes our HI-PLI, Strand-Laid and Braided Slings.



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Wire Rope Sling Department • American Chain & Cable Company, Inc.

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San Francisco, Bridgeport, Conn. • In Canada: Dominion Chain Company, Ltd., Niagara Falls, Ontario



Employment Service

POSITION AVAILABLE

P.A. — Four to five years procurement experience required; suitable degree or degrees mandatory; must be compatible with young management; some knowledge electronic components essential; data processing experience desirable; must be excellent self-organizer accustomed to efficient utilization of personal time without supervision; will direct buying, expediting, inventory control with minimum clerical assistance for highly rated manufacturer in eastern Mass. first year salary: \$8500 to \$9500. Send thorough resume with present earnings to Box 431

Experience: Three years as assistant purchasing agent for multimillion dollar operation. Experienced in cost and inventory control, research, vendor selections and supervising, etc. Have complete knowledge of purchasing procedures. Desire change for brighter future.

Education: Business college, and presently enrolled with Alexander Hamilton Institute of executive training.

Will relocate.
Write: Box 373

Experience: Five years purchasing in automotive field. Supervisory capacity. Full responsibility for purchasing, inventory control, and cost reduction programs. Heavy engineering design background. Also some sales experience.

Education: 3 years college, M.E.
Will relocate.
Write: Box 380

Experience: Six years experience supervisor inventory control, buyer, expeditor, surplus manager. Purchased fasteners, cutting and hand tools, steel products. Established surplus program; helped set up inventory control system using IBM equipment; assisted in establishing purchasing procedures. Familiar with all phases warehousing; value analysis, work simplification.

Education: One year business college; two years college.
Will relocate. Prefer South, Southwest or Southeast.
Write: Box 377

DIRECTOR OF PURCHASES

Multiple-division Mid-West machinery manufacturer, leader in its industry, with sales in excess of \$45,000,000, is seeking a man of executive caliber to take charge of all purchasing activities. You may apply in confidence directly to the company, stating salary requirements, all qualifications and personal information via; Box 429

Experience: Five years as buyer in the aircraft industry. Familiar with all types of buying including cost-type contracting, experimental purchasing, raw material, castings, forgings, industrial gases, oils, chemicals, lubricants, laboratory equipment, x-ray and photographic supplies and equipment, office supplies and equipment, machinery, electrical and plumbing supplies, nuclear parts, metals, abrasives and ceramics. Extensive training in dealing with government agencies, selecting proper sources, negotiating all types purchase orders, analyzing engineering requirements and bids, expediting orders. Age 28.

Education: B.S. degree in business—major in marketing.
Will relocate.
Write: Box 379

HOW TO APPLY

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacement or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence — whether for forms, or in answer to an employment advertisement, to: Box No. Employment Service Department, Purchasing Magazine, 205 East 42nd Street, New York.

PURCHASING AGENT

Young graduate engineer to purchase chemical processing equipment parts, mill supplies, etc. Three to five years experience in plant operations and purchasing. Some formal business training desirable. Write Box 430

Experience: Ten years of industrial experience included PA, production control manager, and sales service analyst. One and one half years purchasing for lubrication system manufacturer, responsible for all diverse materials purchased and purchasing procedures. Experienced in value analysis studies, negotiations of sub-contracts, inventory control, scheduling.

Education: B.B.A.—bus. adm. major. Industrial management minor. Member N.A.P.A.

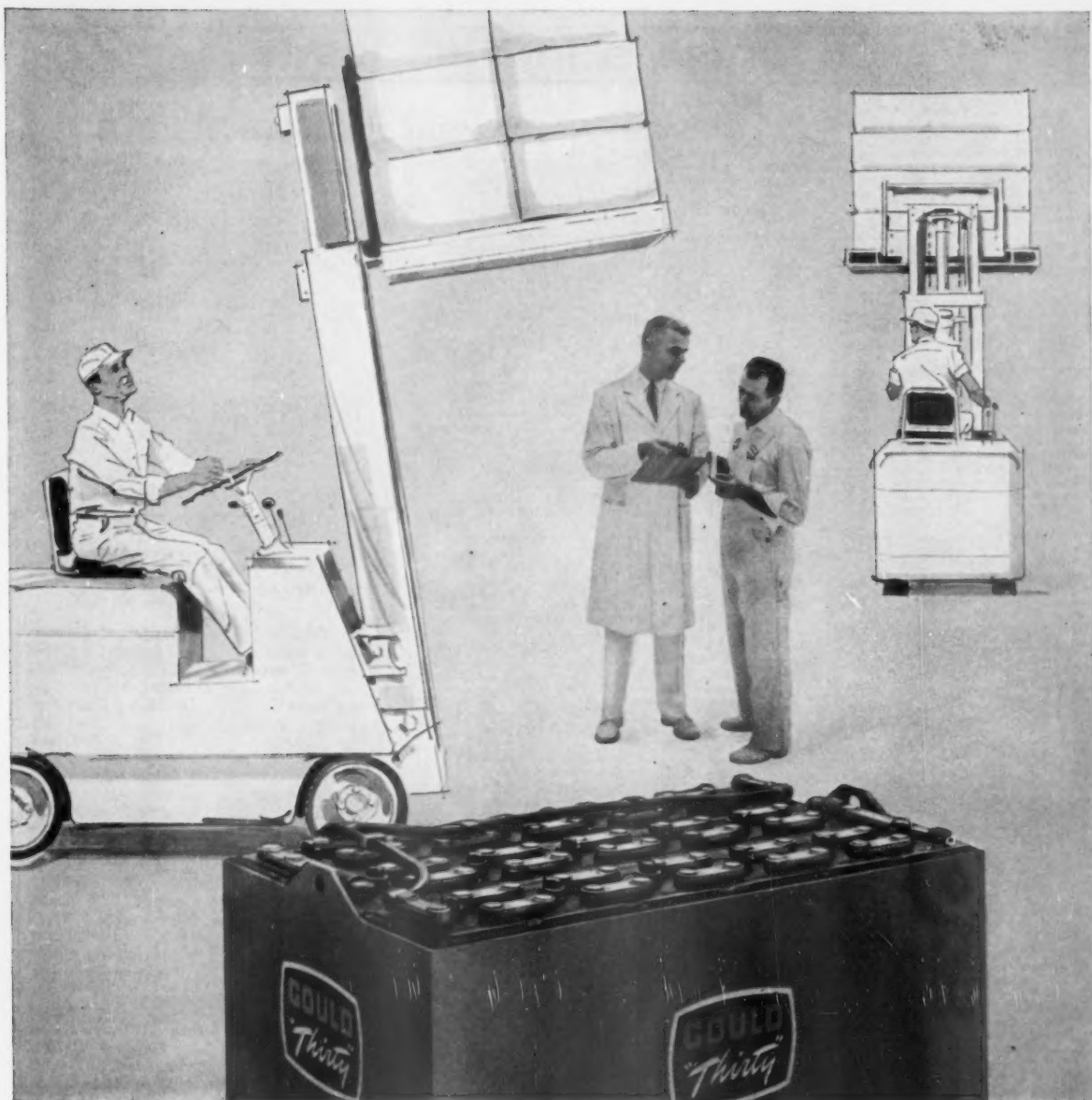
Will relocate.
Write: Box 376

Experience: Three years experience in sales for a major aluminum distributor for independent domestic and reputable European mills. However, a dominant part of my job is purchasing from mills, dealers, and processors. Desiring to become a member of the purchasing profession. Middle twenties.

Education: B.A. in economics, plus several credits in graduate college.
Location: New York City area or Long Island.
Write: Box 378

Experience: Two years experience as material manager in flat rolled steel warehousing operation. Responsible for purchasing, order screening, rough scheduling and production layout. Three years as production layout man. Desire position with greater long run growth potential as P.A. or assistant in a different field.

Education: B.S. bus. adm. major in marketing, sales management—courses in data processing and programming.
Will relocate. Prefer Conn. or Mass. areas.
Write: Box 381



Electric Trucks are CLEANER

Battery-powered electric trucks do not smoke, drip engine oil, or have exhaust fumes to stir up dust. This greatly improves working conditions in all industries, and is particularly important in food and pharmaceutical plants.

Add clean operation to a convincing list of other benefits—lower operating cost, maneuverability, quiet and safe operation—and you can easily see the main reason why users prefer battery-powered electric trucks for modern, efficient materials-handling jobs of all types.

Electric truck users generally agree on one

other point, too—Gould Batteries for longer life. With the new Silconic Plate, Gould Batteries offer up to 25% longer life.

Join the list of users who prefer this ideal combination of electric trucks and Gould Batteries. For more information, write or call your local Gould representative. Ask for booklet "Why We Use Battery-Electric Industrial Trucks." Gould-National Batteries, Inc., First National Bank Building, St. Paul 1, Minnesota. In Canada, write to Gould-National Batteries of Canada, Ltd., 1819 Yonge Street, Toronto, Ontario.

More Power to You from GOULD

Advertisers In This Issue

A	
Ace Plastic Company	126
Acme Visible Records, Inc.	156
Aerogrip Corp.	190
Allegheny Ludlum Steel Corp., 2nd Cover	
Allied Chemical Corp. General	
Chemical Div.	109
Allied Research Prods. Inc.	200
American Airlines Inc.	218
American Chain & Cable Company	
Wire Rope Sling Department	213
American Telephone & Telegraph Co.,	
Business Equipment Sales	154
Amforge Division	104
Ampco Metal, Inc.	108
Ansul Chemical Co.	176
Armour Industrial Chemical Co.	22
Art Metal, Inc.	137-144
Associated Spring Corp.	30

B	
Babcock & Wilcox Co., Tubular	
Products Div.	2
Baker Industrial Trucks, Division of	
Otis Elevator Company	192
Barden Corporation	205
Barnes Co., Wallace	30
Barnes Co., Ltd., Wallace, The	30
Barnes-Gibson-Raymond	30
Bay State Tap & Die Company	35
Bay West Paper Co.	204
Bean, Morris, and Company	218
Bearings Co. of America Div. of Federal	
Mogul-Bower Bearings, Inc.	217
Behr-Manning Co., 4th Cover	
Bethlehem Steel Co.	191
Bostitch, Inc.	145
Bower Roller Bearings Division-Federal	
Mogul Bower Bearings, Inc.	171
Buffalo Forge Company	202, 203
Bussmann Mfg. Co.	56, 57
Byers, A. M., Company	188

C	
Cambridge Wire Cloth Company	117
Capewell Manufacturing Co.,	
The	3rd Cover
Carpenter Steel Co., The	38, 39
Chicago Molded Products Corporation,	
Custom Molded Div.	174, 204
Cincinnati Milling Machine Co.	10
Cleveland Container Co., The	182
Cleveland Twist Drill Co.	34
Cos Knife Company	126
Colorado Fuel & Iron Corp.	158, 159
Continental Can Company	195
Copperweld Steel Co.	12
Crane Co.	64, 65
Crucible Steel Company, Trent Tube	
Division	51

D	
Darnell Corp. Ltd.	210
Denver-Chicago Trucking Co.	16
Detroit Stamping Company	114
Do All Company, The	105
Dow Chemical Company, The	
Chemicals Bus. Mgr.	119
Dunbar Bros. Company	30
Du Pont de Nemours & Co.,	
E. I., Elastomers Division	103

E	
Eagle Pencil Company	146, 147
Eberhard Faber Pencil & Pen Co.	
Inc.	149
Emery Air Freight Co.	4
Ex-Cell-O Corp.	47
Exide Industrial Div. The Electric	
Storage Battery Co.	46

F	
Fairfield Mfg. Co.	196
Faultless Caster Corporation	181
Federal-Mogul Division Federal-	
Mogul Bower Bearings, Inc.	53
Ford Motor Co., Tractor and	
Implement Division	25
Fort Howard Paper Co.	36
Frasse & Co., Inc., Peter A.	54
Freund Can Company	178

G	
Garlock, Inc.	112
Gates Rubber Company, Ind. Div.	
Speed Flex	201
Gaylord Container Division of Crown	
Zellerbach Corporation	189
General Electric Company,	
Large Lamp Division	32
General Fireproofing Co., Inc.	157
Gering Plastics Division of Stude-	
baker Packard Co.	162
Gibson Co., William D., The	30
Gould National Batteries, Inc.	215
Graphic Controls Corp.	212
Gries Reproducer Corp.	21
Gulf Oil Corporation	44, 45

H	
Hamilton Foundry, Inc.	42
Hammermill Paper Company	155
Harnischfeger Corporation	101, 102
Harper Company, The H. M.	133

I	
Harter Corporation	156
H & H Machine Co.	210
Hinde & Dauch Div.	211
Hindley Manufacturing Co.	58
Horsburgh & Scott Co.	208
Hyatt Bearing Div., General Motors	
Corp.	28
Imperial-Eastman Corporation	110, 111
International Business Machines	
Corp., Data Processing Div.	153
International Nickel Co., Inc., The	97

J	
Johnson & Hoffman Mfg. Corp.	122
Joliet Wrought Washer Co.	206
Jomac, Inc.	183

K	
Kimberly-Clark Corp.	8
Klein & Sons, Mathias	132

L	
Laminated Shim Co., Inc.	167
La Salle Steel Company	43
Linear, Inc.	170
Lowell Wrench Company	108
Lyon Metal Products, Inc.	49

M	
Magnetic Metals Co.	50
Marathon Division of American Can	
Company	174
Marbon Chemical Division-Borg-	
Warner Corp.	162
Marsh Instrument Company Division	
of Colorado Oil & Gas Corp.	173
McGill Mfg. Co., Inc.	177
Midwest Plastic Products Co.	186
Minnesota Mining & Mfg. Company,	
Industrial Tapes Division	115
Minnesota Mining & Mfg. Company	
(Thermo-Fax)	152
Mobil Oil Company	120, 121
Morse Twist Drill & Machine Co.	26
Mueller Brass Co.	116

N	
National Cash Register Co.	
(NCR Paper)	151
National Vulcanized Fibre Co.	179
Northern Natural Gas Company	190
Norton Company	4th Cover

O	
Ohio Div., Associated Spring Corp.	30
Orange Roller Bearing Co., Inc.	192
Osborn Mfg. Co.	59

P	
Pan American World Airways	193
Parker Kalon Division, General Amer.	
Trans. Corp.	37
Peerless Steel Equipment Co.	148
Permacel	187
Perrygraf Corp.	186
Philadelphia Quartz Company	176
Pope Machinery Corporation	3
Porter, H. K., Inc.	163
Potter & Brumfield, Division of	
American Machine & Foundry Co.	129

Q	
Quinn-Berry Corporation	24

R	
Raymond Mfg. Company	30
Reliance Electric & Engineering	
Co.	106, 107
Republic Steel Corporation	94, 95
Revere Copper & Brass, Inc.	169
Richardson Company, The	207
Ridge Tool Company, The	184
Riegel Textile Corporation	131
Roberts Co., C. A.	212
Rochester Products, Div. of General	
Motors	68
Roebing's Sons Co., John A. Wire	
Rope	20
Rohm & Haas Co., Plastics Div.	55
Roll Formed Products Company	194
Rollway Bearing Company	124
Rome Cable Division of Alcoa	130
Ryerson & Son, Inc., Joseph T.	134, 135

S	
St. Regis Paper Co.,	
Container Div.	98, 99
Sandvik Steel, Inc.	123
Selberling Latex Products	172
Shell Chemical Corp.	6
Shell Oil Company	165
Sheraton Corporation of America	163
Simonds Abrasive Company	41
Simonds Saw & Steel Company	62, 63
SKF Industries, Inc.	1
Skill Corporation	197
Somers Brass Co., Inc., The	114
Southern Screw Company	48
Stackpole Carbon Co., Electronic	
Components Division	113
Standard Screw Company	32
Steel Service Center Institute, Inc.	166
Stelner Company	125
Sun Shipbuilding & Dry Dock	
Company	172

Superior Steel Division Copperweld	
Steel Company	161

T	
Taylor Fibre Co.	100
Texaco Inc.	183
Timken Roller Bearing Co., Industrial	
Div.	61
Tomkins-Johnson Co.	175
Tractor and Implement Div., Ford	
Motor Company	25
Transue & Williams Company	18
Trent Tube Company	51

U	
Uddeholm Co. of America Inc.	178
Union Wire Rope Co.	60
Utica Drop Forge & Tool Corp.	14

V	
Vanadium-Alloys Steel Company	66
Vascoloy Ramet Corporation	180

W	
Wagner, E. R., Mfg. Company	132
Weirton Steel Company	198, 199
Westinghouse Electric Corp.,	
Lamp Div.	209
Whiting-Flover Paper Company	150
Wolverine Tube—Division of Calumet	
& Hecla, Inc.	127
Wrought Washer Mfg. Co.	128

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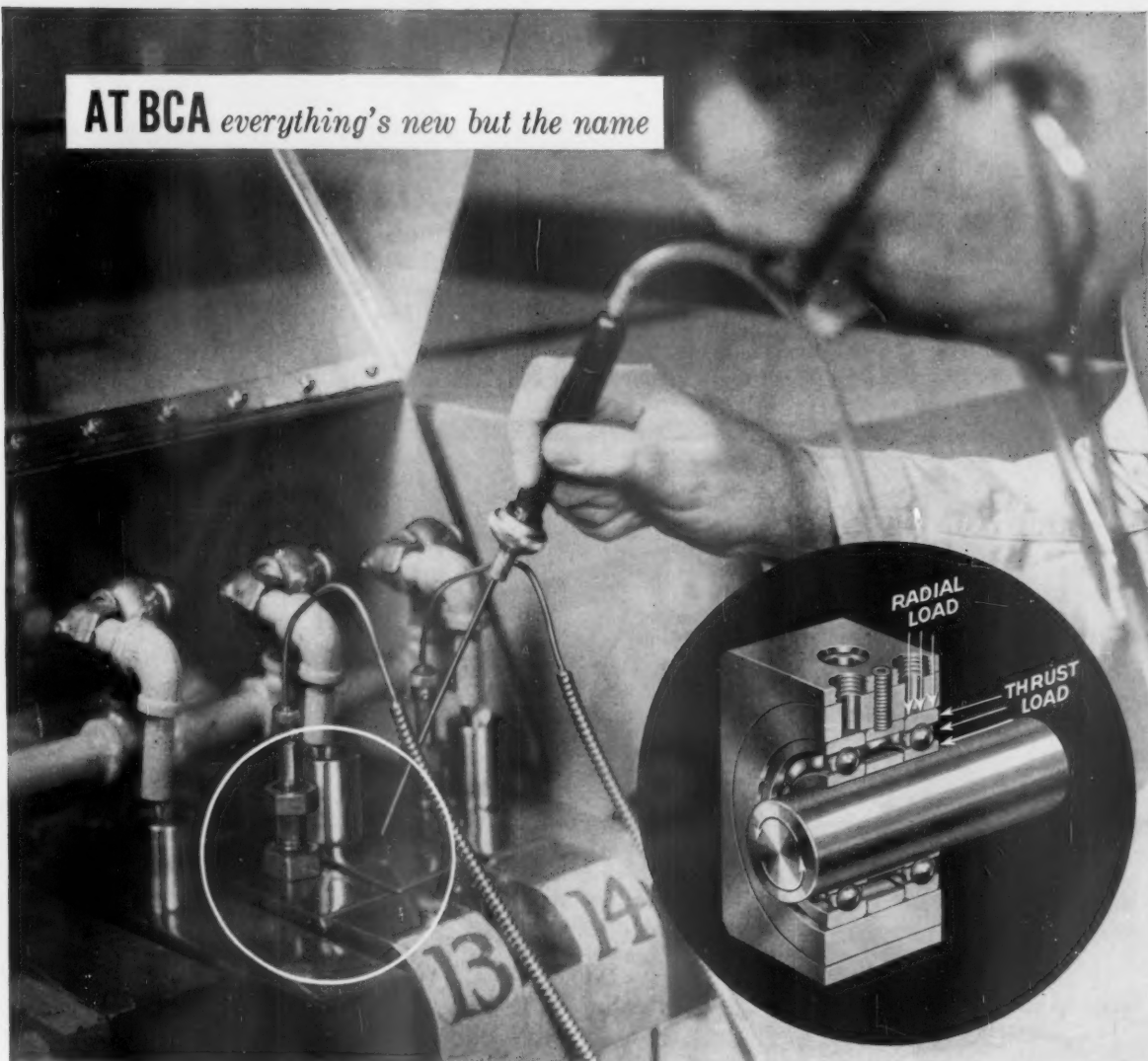
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AT BCA *everything's new but the name*



BALL BEARING "HEARTBEATS"

checked with unique new fatigue tester

With a stethoscope checking the "heartbeats," this unique fatigue tester is putting BCA ball bearings through a battery of exaggerated, but controlled, speed and load tests.

The fatigue testing machines are part of a group of testing devices that provide essential data for BCA's research program. Hydraulically testing BCA bearings at a variety of rotational speeds and under many combinations of radial and thrust loads, each machine checks to see that BCA ball bearings are maintaining the highest fatigue life standards . . . evaluates the fatigue characteristics of new ball bearing materials and new processing methods . . . helps select ball bearing lubricants to provide the longest possible fatigue life.

These machines and BCA's other unusual testing devices are

designed and built to help us develop the highest quality ball bearings available. By simulating actual operating conditions, BCA ball bearings can be tested to *exceed* customer specifications.

BCA ball bearings are standard equipment throughout industry—for both original and replacement applications. BCA's complete line of ball bearing types and sizes . . . design, engineering and manufacturing skill . . . plus research and testing facilities, are some of the reasons that automotive, machine tool, earth moving, agricultural equipment manufacturers specify BCA. We'd like to serve you—with high-performance bearings or technical assistance. Contact Bearings Company of America, Division of Federal-Mogul-Bower Bearings, Inc., Lancaster, Pa.



**BEARINGS COMPANY
OF AMERICA**

ball
bearings

DIVISION OF
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CURE: AMERICAN AIRLINES TRUCK-AIR SERVICE

American Airlines AIRfreight links your plant with 3,042 communities in the U.S.A. through its special Trucking-Air service. Pick-up and delivery is by fast truck, meaning that 3,042 markets are reached with the speed and dependability of American AIRfreight.

One phone call and American's AIRfreight specialists will have your freight on its way to destinations you may have thought inaccessible. These added markets can mean new customers, more profits.

Service like this is only one of the reasons why more

people ship American than any other airline. American's fleet of DC-7 AIRfreighters, jets and other combination planes carries more freight than any other airline. And the world's most experienced AIRfreight specialists guarantee your shipment will have expert handling. *Ship with the professionals—call American AIRfreight.*

AMERICAN AIRLINES

America's Leading Cargo Airline

For More Facts Write No. 317 on Information Card—Page 32

CAPE-ABILITY means maximum band saw production

Realize your full production capabilities through the use of Capewell band saw blades because they can take the speed and feed any job requires. This is possible through advanced materials, manufacturing processes and quality control methods developed by Capewell:

- Cravenizing, Capewell's exclusive process controls the position and degree of hardness in the cutting edge.
- Selected analysis steel specially processed for metal cutting saws, and in the case of Speed-Band a new double carbide alloy, L-100-M, was developed specifically by Capewell to provide a superior band saw blade.
- Electronically controlled tempering achieves proper tooth hardness.
- Microphotographic records maintained on every production lot insure product uniformity.
- Rigid inspection procedures at every step in the manufacturing process insure reliable and uniform performance of all bands.

See your Capewell Distributor and realize your full production capability.

Hand Hack Saw Blades, Power Hack Saw Blades, Hole Saws, Hammers, Ground Flat Stock.



THE CAPEWELL MFG. CO., HARTFORD 2, CONN.

ANOTHER **NORTON** PRODUCT

Push up the output *with RESINALL belts*

DOWN goes production time and up go profits. That's the story time and time again with Behr-Manning resin-bonded* belts and discs. There's less breakdown from heat and loading; more and better cutting per belt dollar.

We can prove it . . . and will. Just ask for an in-plant demonstration.

Write Dept PU-3, BEHR-MANNING Co.,
Troy, N. Y., a division of
Norton Company.

*RESINALL . . . an all-resin-bonded aggressive belt of strong X-weight cloth, for maximum heat resistance in most all rough and intermediate grinding operations.

*RESINIZED . . . a resin-over-glue belt of good heat resistance, in strong X-weight for flat polishing, and in flexible J-weight for contour polishing.



(Guard has been removed
from machine for photo.)



